

Holderness Master Plan
Updated 2007

Town of Holderness
Holderness Planning Board

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This plan was developed by the Town of Holderness Planning Board with assistance
provide by the Lakes Region Planning Commission

INTRODUCTION

The original Master Plan was created with a great deal of input from residents, including questionnaires, several workshops and many public meetings. This update of the Plan has continued to compile the desires of the community with a facilitated public meeting in the beginning to gather citizen input. Their input was then condensed by a group of residents. Lakes Region Planning Commission was employed by the Holderness Planning Board to organize and put the Plan together. One of their charges was to separate the Plan into independent chapters so that portions of it may be updated on a more frequent basis. Some of the statistical material (such as the population chapter) may only be updated with the 10 year Census. There are some statements, particularly in chapter 4 that are more suitable for the regular budget process than the Master Plan. They were left in the Plan for citizen informational purposes and will not be addressed by the Planning Board. For example we do not feel the needs or types of particular vehicles or the number of staff in a department should be specified in this document. These are needs, concerns, and issues of the various departments and hopefully will be addressed in other forums.

It is hoped that the Master Plan will be reviewed and updated more frequently than it has been. Being organized into individual chapters the plan may be more easily updated without having to employ outside contractors.

The Planning Board will now use the Master Plan to keep the Zoning Ordinance and other regulations in line with the desires of the residents within the guidelines of State laws.

The Planning Board would like to thank the many residents who contributed their thoughts, comments, and time to this document. We are grateful for consideration and cooperation of the town departments, employees, and committees. Although it has been a long process your support has been most helpful.

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HOLDERNESS VISION

Holderness's lakes, mountains, hillsides, woodlands, streams, wetlands, scenic views, geographic location and unique resource areas are important elements to the quality of life for residents, other property owners, and visitors. The future should be regulated by the town's policies and ordinances which must protect the natural resources, including our aesthetic values, and preserve the essential rural character of the town. Although tourism is a mainstay of the local economy, it should not preclude the town's consideration of other low impact opportunities which could enhance its future economic health.

Chapter I: Population

The analysis of population trends and characteristics is an essential element of the Master Plan. Trends in population growth can affect a variety of factors ranging from basic community needs such as police and fire protection to other more subjective factors, such as the quality of life. An analysis of population trends can help guide local officials as they make important decisions regarding the town's future.

Much of the data in this chapter comes from the 2000 U.S. Census. Additional data, such as the annual number of births and deaths are attributable to town records and the NH Department of Health and Welfare, while some tabulation of U.S. Census data has been undertaken by the New Hampshire Office of Energy and Planning.

The population chapter of the Holderness Master Plan begins with a discussion of historic population trends, relating the fluctuations in resident population from the time population counts were first undertaken in 1773 to the present. The chapter then addresses more recent population trends; rates of increase and population densities will be compared with the towns immediately surrounding Holderness. These town trends are compared to county trends, and changes in state population figures. The number of seasonal housing units found in Holderness will then be compared with area towns, counties, and the state of New Hampshire. This will be followed with a discussion of population mobility.

The second section of this chapter will examine socio-economic aspects of the town's resident base, comparing some of these variables with those of surrounding towns. Variables to be analyzed include a review of 1999 per capita and household income levels, poverty rates, school-age population, and education status of residents aged 25 years or more. Finally, the 2000 population will be broken down by age group to better present the number of persons within the different age groups.

The final section of this chapter will include several alternative population projections for the town of Holderness through 2030. An explanation of the alternative methods is also included within this section.

1. Historic Trends

The number of residents in Holderness increased dramatically between 1773 (when records were first kept) and the 1860 Census, increasing by more than 1,600 persons from 147 to 1,765 persons. During the same time period, both Grafton County and the state of New Hampshire as a whole also experienced exponential increases in population, with the county increasing from 2,930

persons to a population of 40,935 and New Hampshire increasing from 73,097 to 352,858 in 1860. Declines in population were experienced between the 1860 and 1880 Census' by the town, county and state due to a variety of factors. The significant decrease in Holderness' population is directly attributable to a large section of the town separating to form the township of Ashland, while the decline in population throughout the county and state can be traced to the westward movement of many residents, the draw of the city for younger persons, and the advent of the Civil War.

Table I-1: Historic Population Trends, 1773-2000

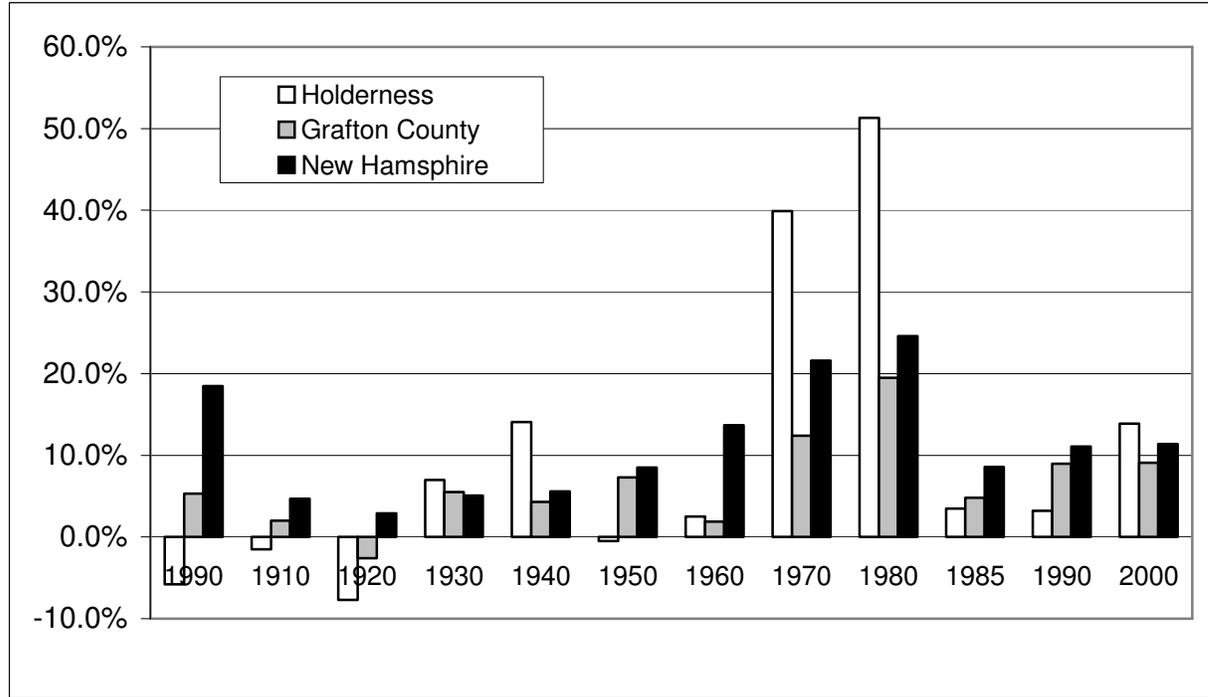
Year	Holderness			Grafton County			New Hampshire		
	Population	Population Change	Percent Change	Population	Population Change	Percent Change	Population	Population Change	Percent Change
1773	147	-	-	2,930	-	-	73,097	-	-
1783	267	120	81.6%	3,394	464	15.8%	64,994	-8,103	-11.1%
1790	329	62	23.2%	11,953	8,559	252.2%	141,217	76,223	117.3%
1800	531	202	61.4%	19,413	7,460	62.4%	183,515	42,298	30.0%
1820	1,160	629	118.5%	31,551	12,138	62.5%	243,912	60,397	32.9%
1840	1,528	368	31.7%	40,495	8,944	28.3%	284,304	40,392	16.6%
1860	1,765	237	15.5%	40,935	440	1.1%	352,858	68,554	24.1%
Change in Holderness population due to the secession of a large area of Town to form the Township of Ashland.									
1880	703	-1,062	-60.2%	38,788	-2,147	-5.2%	346,638	-6,220	-1.8%
1900	662	-41	-5.8%	40,844	2,056	5.3%	410,938	64,300	18.5%
1910	652	-10	-1.5%	41,652	808	2.0%	430,376	19,438	4.7%
1920	602	-50	-7.7%	40,572	-1,080	-2.6%	442,716	12,340	2.9%
1930	644	42	7.0%	42,816	2,244	5.5%	465,115	22,399	5.1%
1940	735	91	14.1%	44,645	1,829	4.3%	491,320	26,205	5.6%
1950	731	-4	-0.5%	47,923	3,278	7.3%	533,110	41,790	8.5%
1960	749	18	2.5%	48,857	934	1.9%	606,400	73,290	13.7%
1970	1,048	299	39.9%	54,915	6,058	12.4%	737,578	131,178	21.6%
1980	1,586	538	51.3%	65,628	10,713	19.5%	918,827	181,249	24.6%
1985	1,642	56	3.5%	68,747	3,119	4.8%	998,000	79,173	8.6%
1990	1,694	52	3.2%	74,929	6,182	9.0%	1,109,252	111,252	11.1%
2000	1,930	236	13.9%	81,743	6,814	9.1%	1,235,786	126,534	11.4%

Sources: 1773 NH State Papers; 1780-2000 U.S. Census; 1985 NH Office of State Planning estimate

Holderness continued to experience losses in population through the early 1900's, decreasing to a low of 602 persons at the time of the 1920 Census, while at the same time the state and county populations generally increased. Between 1920 and 1960, the total population in Holderness increased by only 147 persons over the 40 year period for an average increase of 37 persons per decade. From this trend it can be concluded that natural increases due to births and deaths (see Table I-13) were generally offset by out-migration of those moving to the south and west in search of employment or a different climate. The town's population again began to increase substantially between 1960 and 1970, rising almost 40% over the ten year period. This

growth rate increased at an even greater rate during the 1970s as the total number of residents grew by over 50% to 1,586 in 1980. Between 1985 and 1990, population increases were moderate, averaging less than 1% a year. Between 1990 and 2000, the town's population experienced an increase of nearly 14%.

Figure I-1: Historic Population Increase in Percentage, 1880-2000



Sources: 1880-2000 U.S. Census; 1985 NH Office of State Planning estimate

Both Grafton County and the state of New Hampshire experienced moderate growth rates between 1900 and 1960, with the state of New Hampshire outpacing county growth each Census except 1930, when county and town growth slightly exceeded that of the state. In fact, between 1860 and 1960, Grafton County's population only increased by 7,922, or 1.9% each decade. The town, county and state increased dramatically in population between 1960 and 1980, but unlike Holderness and the county, the state of New Hampshire continued to grow by nearly 20% between 1980 and 1990. In comparison, Holderness' population increased 6.7%, and Grafton County grew by 13.8% over the same period. Between 1990 and 2000, Grafton County grew by 9.1%, and the state of New Hampshire grew by 11.4% while Holderness grew by 13.9%.

2. Population Density

A comparison of recent changes in the number of residents and in population densities is presented in Table I-2. With a growth rate of 6.8% between 1980 and 1990, Holderness ranked eight among neighboring towns.

Table I-2: Local Population Trends, 1980-2000

Municipality	1980	1990	2000	1980-1990 Percent Change	1990-2000 Percent Change	Land Area (square miles)	Person per Square Mile
Ashland	1,807	1,915	1,955	6.0%	2.1%	11.3	173
Bridgewater	606	796	974	31.4%	22.4%	21.3	45.7
Campton	1,711	2,377	2,719	38.9%	14.4%	51.9	52.4
Center Harbor	808	996	996	23.3%	0.0%	13.4	74.3
Holderness	1,586	1,694	1,930	6.80%	13.90%	30.5	63.3
Laconia	15,575	15,743	16,411	1.1%	4.2%	20.3	808.4
Meredith	4,646	4,837	5,943	4.1%	22.9%	40.2	147.8
Moultonborough	2,206	2,956	4,484	34.0%	51.7%	59.8	75
New Hampton	1,249	1,606	1,950	28.6%	21.4%	36.7	53.1
Plymouth	5,107	5,872	5,892	15.0%	0.3%	28.3	208.2
Sandwich	905	1,066	1,286	17.8%	20.6%	90.6	14.2
Belknap County	42,884	49,216	56,325	14.8%	14.4%	401.3	140.4
Carroll County	27,728	35,410	43,666	27.7%	23.3%	933.9	46.8
Grafton County	65,628	74,929	81,743	14.2%	9.1%	1,713.50	47.7
New Hampshire	920,475	1,109,252	1,235,786	20.5%	11.4%	8,969.40	137.8

Source: US Census, 1980-2000

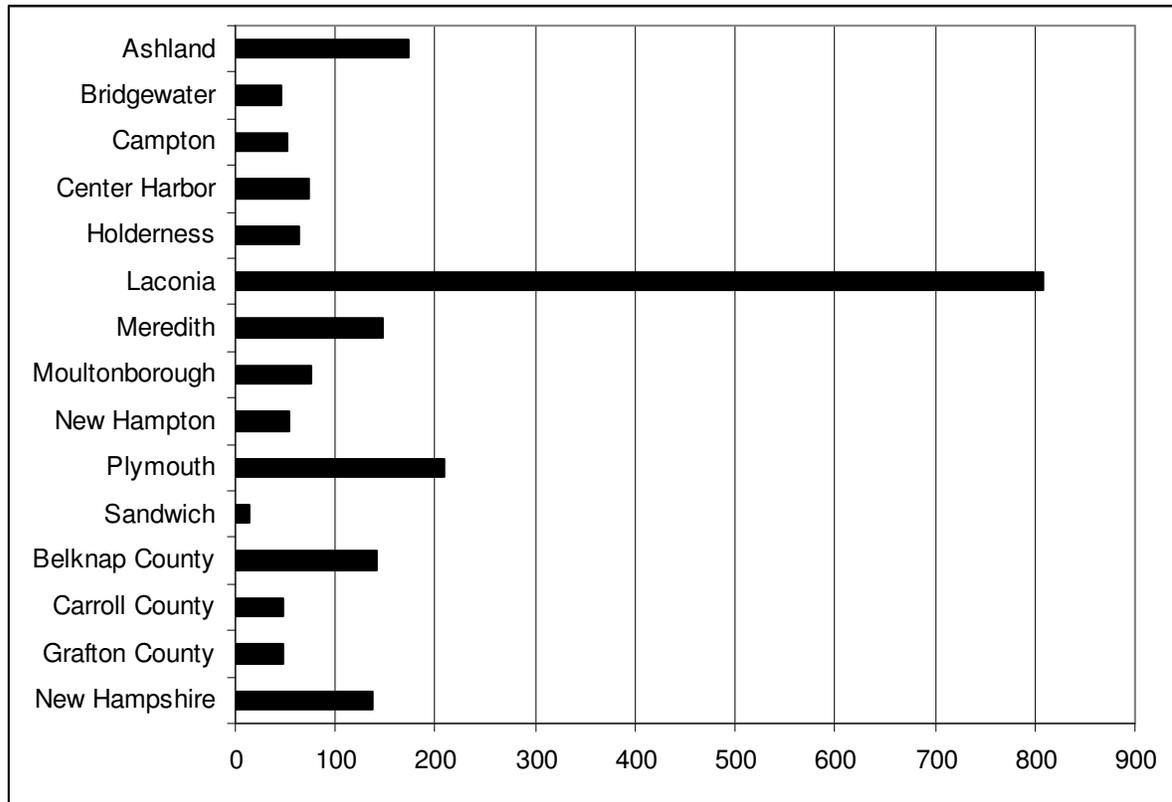
Table I-3: Holderness Population Density, 1940-2000

	1940	1950	1960	1970	1980	1990	2000
Persons Per Square Mile	23	23	24	36	51	55.5	63.3

Source: 1940-2000 U.S. Census

Holderness ranks seventh among the eleven area towns with regard to population density (Figure I-2). With a 2000 Census population of 1,930 and a land area of 30.5 square miles, the density of persons in 2000 was 63.3 persons per square mile. In comparison, the highest density was Laconia at 808.4 persons per square mile, while the least dense was Sandwich at 14.2 persons per square mile. The state of New Hampshire had a population density of 137.8 persons per square mile, considerably higher than that found in Holderness. In comparison to adjacent towns, only Plymouth (at 208.2 persons per square mile) and Ashland (at 173.0 persons per square mile) exceed the density found in Holderness.

Figure I-2: Population Densities, 2000



Source: 2000 U.S. Census

3. Seasonal Residents

Estimating seasonal population can be a difficult task. For the purposes of this document both U.S. Census figures and a local survey will be used in order to derive an estimate as accurate as possible.

The first estimate of seasonal housing units can be made using 2000 U.S. Census data. As presented in the Housing Chapter of the Master Plan, the U.S. Census estimates that there were 404 seasonal dwelling units throughout Holderness in 2000, accounting for 33.4% of all dwelling units. Through the use of the year-round person per household figure of 2.48 persons, it can be conservatively estimated that there are at least 1,002 seasonal residents in Holderness (2.48 persons per household multiplied by 404 seasonal homes). This is conservative because it is felt that seasonal households are slightly larger than year-round households.

The seasonal population is also difficult to estimate in Holderness due to large weekly and monthly fluctuations in the number of visitors. Some seasonal residents stay in Holderness all summer, while others will remain for short periods. Despite the difficulty in estimating the number of seasonal residents in Holderness at one time, there is no doubt that seasonal residents

impact the town's services and economic base. Please see the Economic Base Chapter of the Master Plan for a more in-depth discussion of the impact of seasonal residents in Holderness.

4. Population Mobility

As presented below in Table I-4, a good measure of population mobility can be found in both the percentage of residents born in the state of New Hampshire and a determination of what percentage of current residents lived in the same dwelling unit in 1995. According to the latest U.S. Census, only 43.3% of all New Hampshire residents were born in the state. At 49.0%, Holderness has a higher rate than found overall in the state. In comparison, Bridgewater, Center Harbor, Meredith, Moultonborough, Plymouth and Sandwich each have a lower percentage of residents born in the state than found in Holderness. These figures simply prove that Holderness residents represent a nearly equal mix of those born within and outside of the state.

The percentage of persons who live in the same dwelling unit as they did in 1995 is a good representation of recent population mobility. The percentage of persons who have lived in their home since 1995 is again higher in Holderness than found throughout the entire state, with only four other towns in the immediate region having a higher rate. Clearly, a large number of Holderness residents have resided in the same home longer than typically found in other areas throughout New Hampshire.

Table I-4: Population Mobility

Municipality	2000 Population	Born in New Hampshire		Occupied Same House in 1995	
		Number	Percent	Number	Percent
Ashland	1,955	1,134	58.0%	910	46.5%
Bridgewater	974	404	41.5%	598	61.4%
Campton	2,719	1,399	51.4%	1,471	54.1%
Center Harbor	996	443	44.5%	649	65.2%
Holderness	1,930	946	49.0%	1,165	60.4%
Laconia	16,411	9,629	58.7%	7,536	45.9%
Meredith	5,943	2,609	43.9%	3,036	51.1%
Moultonborough	4,484	1,554	34.7%	2,612	58.3%
New Hampton	1,950	1,024	52.5%	1,190	61.0%
Plymouth	5,892	2,487	42.2%	2,546	43.2%
Sandwich	1,286	561	43.6%	854	66.4%
Belknap County	56,325	29,954	53.2%	29,798	52.9%
Carroll County	43,666	16,438	37.6%	24,466	56.0%
Grafton County	81,743	36,964	45.2%	42,233	51.7%
New Hampshire	1,235,786	534,558	43.3%	642,397	52.0%

Source: 2000 U.S. Census

5. Social/Economic Indicators

Comparative Incomes - Median incomes vary dramatically among the towns surrounding Holderness as well as among the three nearest counties. Families are defined as consisting of a householder and one or more persons living in the household who are related by birth, marriage, or adoption. In contrast, a household includes all persons who occupy a particular housing unit, whether they are related or not. Median income figures for families and households are the sum of income of all persons 15 years or older living in the housing unit. In 1999, Holderness had the second highest median family income among the 11 towns in the immediate area.

Table I-5: Comparative Incomes

Location	Median 1999 Family Income (dollars)	Median 1999 Family Income (rank)	Median 1999 Household Income (rank)	Median 1999 Household Income (dollars)
Ashland	38,487	11	11	33,345
Bridgewater	54,722	10	5	50,662
Campton	46,492	6	8	39,213
Center Harbor	55,938	1	1	51,806
Holderness	55,526	5	2	43,451
Laconia	45,307	4	9	37,796
Meredith	54,764	8	4	42,758
Moultonborough	51,729	7	7	45,050
New Hampton	52,366	3	6	47,583
Plymouth	43,797	9	10	35,618
Sandwich	55,417	2	3	47,292
Belknap County	50,510	-	-	43,605
Carroll County	46,922	-	-	39,990
Grafton County	50,424	-	-	41,962
New Hampshire	57,575	-	-	49,467

Source: 1990 and 2000 U.S. Census

Poverty Status

Table I-6 presents poverty rates as determined by the U.S. Census in 1999. In Holderness, 4.9 percent of the population met the income criteria for poverty level in 1999; when a family of four fell below the poverty threshold if the family's income was below \$16,895, while for a single person above 18 years of age this figure was \$8,501. The poverty rate of 4.9 percent was third lowest among towns surrounding Holderness, and was below both Belknap County and the state of New Hampshire. Carroll and Grafton Counties had figures of 7.9 percent and 8.6 percent, respectively.

Table I-6: Poverty Rates (Persons for whom poverty status was reviewed)

Location	All Persons		Less Than 5		65 and Older		All Families	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Ashland	197	10.2	5	3.6	23	8.6	38	7.5
Bridgewater	67	6.9	0	0.0	9	4.8	18	6.1
Campton	239	8.8	9	5.8	28	8.6	44	5.8
Center Harbor	68	6.7	13	31.0	9	5.2	13	4.4
Holderness	94	4.9	12	12.5	10	4.0	16	2.8
Laconia	1,382	8.9	162	18.6	135	4.8	316	7.5
Meredith	382	6.6	62	21.4	86	8.6	72	4.2
Moultonborough	180	4.0	0	0.0	23	2.6	44	3.2
New Hampton	89	4.7	0	0.0	17	7.1	14	2.7
Plymouth	785	18.6	18	7.7	33	7.2	61	6.2
Sandwich	78	6.1	5	9.6	16	5.2	14	3.5
Belknap County	3,350	6.1	389	13.0	392	4.6	704	4.5
Carroll County	3,411	7.9	234	11.2	500	6.4	684	5.5
Grafton County	6,462	8.6	446	10.6	759	6.9	1,033	5.1
New Hampshire	78,530	6.5	1,396	1.8	9,992	6.8	13,948	4.3

Source: 2000 US Census

In addition to determining the overall percentage of persons living below the poverty threshold, the U.S. Census also presents figures for all children under 5 years of age and all persons 65 years or older, and all families. Poverty rates for related children less than 5 years old in Holderness was the fourth highest compared to surrounding towns, but lower than the poverty rates for Grafton County.

The town does rank well when examining the poverty rank of persons 65 years or older. At 4.0%, Holderness was lower than the state rate of 6.8%, and below Grafton County's poverty rate for this age group of 6.9%. In comparison to area towns, only Moultonborough had a lower rate poverty rate of 2.6% of persons 65 years or older.

Finally, figures representing all families detail that Holderness has the second lowest percentage in comparison to area towns, counties and the state with 2.8% of all families living below the poverty threshold. Only the town of New Hampton at 2.7% had a lower family poverty rate.

School-Age Population - In a comparison of school-age population groups between Holderness, Grafton County, and the state of New Hampshire, it can be seen that Holderness has a lower percentage of children under the age of 5 than found in both the county and state. In contrast, Holderness has a higher percentage in nearly all other age groups between the ages of 5 and 17, as compared to Grafton County. Although this is only a cursory look at

school-age population totals, the figures may indicate a possible reduction of pressure on local schools in the near future.

Table I - 7: School Age Population, 2000

Age Group	Holderness	Percent of Total	Grafton County	Percent of Total	New Hampshire	Percent of Total
Less than 5	96	5	4,215	5.2	75,685	6.1
5 to 9	132	6.8	4,839	5.9	88,537	7.2
10 to 14	135	7	2,714	3.3	93,255	7.5
15 to 17	108	5.6	3,303	4	52,085	4.2
Total Population	471	24.4*	16,923	22.6*	309,562	25.0*

Source: 2000 U.S. Census

* Percentage of persons between the ages of 5 and 17

Educational Attainment

The percentage of Holderness residents who have graduated from high school as well as those who have bachelor or advanced degrees is presented in Table I-8. The figures clearly detail that Holderness has a well-educated population as 88.7% of those 25 years or older were high school graduates, trailing only Center Harbor and Sandwich. This percentage also compares very favorably with that of the state of New Hampshire at 82.2%, and Belknap, Grafton, and Carroll Counties at 80.4, 81.4, and 83.5%, respectively. Holderness also has a large percentage of college graduates among its population 25 years or older. At 32.2%, it is the second highest figure found among the 11 towns.

Table I-8: Educational Attainment

Education	Holderness		Grafton County	New Hampshire
	Number	Percent	Percent	Percent
Less than 9th Grade	24	1.8%	3.7%	3.9%
No Diploma	75	5.6%	8.6%	8.7%
High School Graduate	361	27.2%	31.0%	30.1%
Some College, No Degree	237	17.8%	16.9%	20.0%
Associate Degree	95	7.1%	7.1%	8.7%
Bachelor's Degree	319	24.0%	18.4%	18.7%
Graduate or Professional Degree	218	16.4%	14.2%	10.0%

Source: 2000 U.S. Census

Age Groups- Explanations for fluctuations in the number of persons in specific age groups include the baby-boomers, which account for the large number of persons between the ages of 45 and 59, and a large number of persons of retirement age. As shown in Table I-9, the decrease of persons 65 years old and older in 1990 is followed by an increase in 2000. This increase mirrors increases in the percentages of retirees in the state and Grafton County.

Table I - 9: Senior Citizens as a Percentage of Total Population, 1970-2000

Location	1970	1980	1990	2000
Holderness	11.6	11.7	10.2	12.8
Grafton County	11.7	13.7	12.4	14.5
New Hampshire	10.6	11.2	11.2	12

Source: U.S. Census, 1970-2000

A breakdown of age groups in Holderness is presented in Table I-10. The largest age group is the 45 to 49 year olds, with 97 males and 110 females. The 65 years of age and older group also represents a large group with a total of 248 people.

Table I - 10: Holderness Age Groups, 2000

Years of Age	Male	Female	Total	Years of Age	Male	Female	Total
Less Than 5	41	55	96	45 to 49	97	110	207
5 to 9	58	74	132	50 to 54	95	85	180
10 to 14	71	64	135	55 to 59	74	48	122
15 to 19	71	80	151	60 to 64	48	49	97
20 to 24	52	38	90	65 to 69	47	37	84
25 to 29	43	40	83	70 to 74	33	40	73
30 to 34	48	52	100	75 to 79	22	22	44
35 to 39	49	57	106	80 to 84	10	14	24
40 to 44	80	103	183	85 or Older	6	17	23

Source: 2000 U.S. Census

Median Age Comparison

The median age increased dramatically in Holderness between 1990 and 2000. This followed a significant increase between 1980 and 1990. In comparing the 2000 median age in Holderness with other area towns, the highest median age can be found in Sandwich at 47.2 years. In contrast, due to large numbers of college students, Plymouth had a 2000 median age of 22.0. At 42.1 years, Holderness lies in the middle of the eleven area municipalities and significantly above the median age found in Grafton County and New Hampshire as a whole.

Table I - 11: Median Age Comparison

Location	1980	1990	2000	1980-1990 Percent Change	1990-2000 Percent Change
Ashland	29.3	32.6	36.8	11.3%	12.9%
Bridgewater	37.8	37.4	45.4	-1.1%	21.4%
Campton	29.8	33.1	39	11.1%	17.8%
Center Harbor	31.7	37.5	44.6	18.3%	18.9%
Holderness	30.8	35.2	42.1	14.3%	19.6%
Laconia	31.3	34.4	38.8	9.9%	12.8%
Meredith	33.6	36.2	42.5	7.7%	17.4%
Moultonborough	39.4	37.8	46.6	-4.1%	23.3%
New Hampton	31.3	34	38.3	8.6%	12.6%
Plymouth	21.3	21.7	22	1.9%	1.4%
Sandwich	43.1	41.3	47.2	-4.2%	14.3%
Belknap County	32.1	35	40.1	9.0%	14.6%
Carroll County	34.8	36.9	42.5	6.0%	15.2%
Grafton County	29.3	32.2	37	9.9%	14.9%
New Hampshire	30.1	32.8	37.1	9.0%	13.1%

Source: 1980-2000 U.S. Census

6. Population Projections

Recent Trends

An accurate projection of population trends can be a very difficult task, especially in a town with a relatively small population such as Holderness. Population fluctuations can be seen when examining figures related to natural increase and in-migration since 1970 as found below in Table I-12 and Table I-13. The period between 1970 and 1980 (inclusive) was a time of steady growth in Holderness. While the natural increase (births - deaths) was not extremely high, the average annual in-migration in Holderness was 49 persons per year. In contrast, much of the increase between 1980 and 1990 can be attributed to natural increase, as in-migration slowed dramatically to an average of nine (9) persons per year. Between 1990 and 2000 the number of births and deaths remained relatively stable. During this same period, the average in-migration in Holderness increased to twenty-one (21) persons per year.

Table I - 12: Births and Deaths, 1970-2000

Year	Births	Deaths	Year	Births	Deaths	Year	Births	Deaths
1970	27	6	1980	19	16	1990	19	16
1971	26	9	1981	21	18	1991	33	11
1972	15	6	1982	26	10	1992	32	19
1973	13	27	1983	15	12	1993	14	10
1974	12	13	1984	25	9	1994	13	6
1975	23	15	1985	21	21	1995	19	14
1976	12	5	1986	20	10	1996	11	16
1977	15	15	1987	12	18	1997	10	8
1978	17	7	1988	15	9	1998	17	12
1979	20	8	1989	21	21	1999	19	12
1980	19	16	1990	19	16	2000	15	18
	199	127		214	157	2001	11	13
1970-80	Change	+ 72	1980-90	Change	+ 57	2002	18	10
						2003	11	8
							242	173
						1990-03	Change	+ 69

Sources: NH Department of Health and Welfare, Bureau of Vital Records and Statistics 1992-2002; 1980-2003 Holderness Annual Town Reports

Table I - 13: Natural Increase and In-Migration Trends, 1970 to 2000

Years	Population Change	Percent Increase	Number of Births	Average Births per Year	Number of Deaths	Average Deaths per Year
1970 - 1980	538	51.3%	199	18	127	11
1980 - 1990	108	6.8%	214	19	157	14
1990 - 2000	236	13.9%	202	18	142	13

Sources: NH Department of Health and Welfare, Bureau of Vital Records and Statistics 1992-2002; 1980-1991 Holderness Annual Town Reports; 1970-2000 U.S. Census

Projections

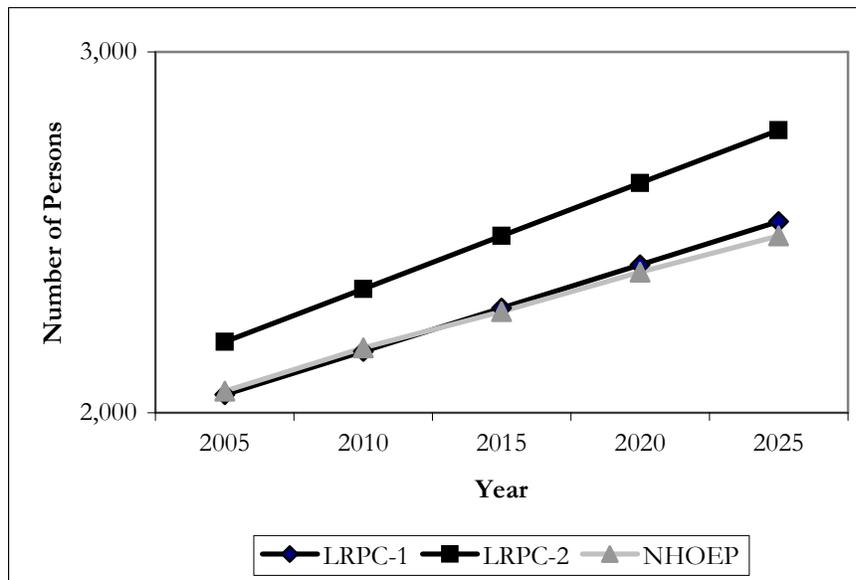
Three alternative population projections have been used to estimate Holderness' future population. The first projection (entitled LRPC1) forecasts the average annual rate of growth beginning in 1950 through 2005-2030 in five year increments. While this methodology includes the abnormally high rates of growth between 1960 and 1980, in reality, Holderness has historically experienced a much lower rate of population increase than can be found between 1960 and 1980. However, since 1990, Holderness has experienced another period of high growth. To account for the slowing growth rate between 1980 and 1990, and the increase since 1990, a second method of projection (LRPC2) forecasts growth based on historical data since 1980. This method projects significantly higher population projections. Finally, the NH Office of Energy and Planning has projected a rate of growth through 2025 that is similar to LRPC1.

Table I - 14: Population Projections - 2005-2030

Year	LRPC - 1	LRPC - 2	NH OSP
2005	2,050	2,197	2,060
2010	2,170	2,343	2,180
2015	2,290	2,490	2,280
2020	2,410	2,637	2,390
2025	2,530	2,783	2,490
2030	2,650	2,930	not calculated

It is interesting to note that the population projections contained within the 1994 Holderness Master Plan estimated the 2000 population to be between 1,697 and 1,845.

Table I - 14: Population Projections - 2005-2030



Source: (Table I-14 and Figure I-4): LRPC analysis, NH Office of Energy and Planning Analysis

7. Summary

Holderness has experienced several distinct periods of dramatic growth. Most recently, between 1990 and 2000 the population in Holderness increased 13.9%, exceeding growth rates of Grafton County and New Hampshire. Estimates based on average household size indicate conservatively a 55% seasonal population increase. This estimate accounts for occupancy of seasonal houses, not the occupancy of the many accommodations available at lodging facilities, summer camps, and campgrounds. Seasonal population fluctuations can have a significant

impact on transportation, and the provision of municipal services such as police, fire, and solid waste.

Holderness is home to an aging population. The percentage of the population 65 years and older has increased to almost 13 percent of the population in 2000. The largest age groups are working and family aged residents, in the 40-49 years of age bracket, who represent twenty percent of the population. Holderness is home to a school aged population that is slightly higher than in Grafton County and New Hampshire. An aging population may indicate a greater future demand for nursing, retirement, and transportation services to accommodate this demographic.

Given the high quality of life, low rates of poverty, and educational attainment exceeding the county and state; it is likely that Holderness will continue to be an attractive place to live. Population projections indicate that the town's population in 2020 will be between 2,400 and 2,600 persons, representing a 24-35 percent increase from 2000. The provision of municipal services and impacts on the transportation system that future increases in population will have is further explored in other chapters of this document.

Chapter II: Housing

Housing not only shelters a town's residents, it also provides a major source of revenue through property taxes. A mix of housing types is vital to a town's overall environment. In addition to being a major use of town lands, housing is also the largest investment many residents will ever make. Clearly, housing impacts every facet of life in Holderness. Due to the ever increasing costs of purchasing a home, some families now find it impossible to purchase even a "starter home." When they find it impossible to buy, families often find that a large percentage of their total income must be spent on rent. A measure of affordability is the cost of housing as a percentage of family income. According to the U.S. Census there were 272 families in Holderness, both renters and home-owners, spending more than 35% of their income on housing in 2000.

The town of Holderness, like other municipalities throughout the Lakes Region, experienced a large increase in population between 1990 to 2000. The 13.9 % increase coincided with an increase in housing units in town, both seasonal and year-round. The purpose of this chapter is to quantify the changes in the overall housing stock in order to better plan for future housing opportunities for both current and future residents.

This discussion will first examine recent trends and changes in the overall housing stock in Holderness and the immediate area. It is important to review these trends in order to get a better understanding of what is currently available in town with regard to housing types, as well as to help project trends into the immediate future. This section will look at trends with regard to single family, duplex, multi-family, manufactured housing, and seasonal housing. Housing conditions will also be reviewed along with owner-occupied home values and median rents.

Housing needs are another major issue which must be addressed. NH RSA 674:2 (1) requires that the housing component of the master plan include a section which *"...assesses local housing conditions and projects future housing needs of residents of all levels of income and ages in the municipality and the region..."* Data for this assessment were generated by the Lakes Region Planning Commission in the formulation of the *Lakes Region Housing Needs Assessment* (2004).

Finally, a number of recommendations with regard to the improvement of the overall housing stock and the provision of affordable housing will be discussed.

1. Recent Trends

The overall housing stock (both year-round and seasonal) in Holderness increased by more than 17% between 1980 and 1990 to a total of 1,136 units. In spite of this large increase almost every town in the immediate region surpassed the percentage increase experienced by Holderness. On a numerical basis, Holderness exceeded only Center Harbor and Sandwich in the construction of new homes, with an increase of 168 units over the ten year period or nearly 17 per year. The housing stock increased an additional 6.3 % or 72 units between 1990-2000. This represented a percent increase greater than Grafton County overall, but less than the state and other communities in Grafton County.

Table II-1: Housing Trends - All Housing Units

	1990	2000	Change 1990-2000	1990-2000 Percent Change	Change per Year	Percent Change per Year
Ashland	1,162	1,149	-13	-1.1%	-1	-0.1%
Bridgewater	843	850	7	0.8%	1	0.1%
Campton	1,623	1,759	136	8.4%	14	0.8%
Center Harbor	649	653	4	0.6%	0	0.1%
Holderness	1,136	1,208	72	6.3%	7	0.6%
Laconia	8,201	8,554	353	4.3%	35	0.4%
Meredith	3,720	4,191	471	12.7%	47	1.3%
Moultonborough	3,824	4,523	699	18.3%	70	1.8%
New Hampton	855	944	89	10.4%	9	1.0%
Plymouth	2,063	1,901	-162	-7.9%	-16	-0.8%
Sandwich	864	965	101	11.7%	10	1.2%
Belknap County	30,306	32,121	1,815	6.0%	182	0.6%
Carroll County	32,146	34,750	2,604	8.1%	260	0.8%
Grafton County	42,206	43,729	1,523	3.6%	152	0.4%
New Hampshire	503,904	547,024	43,120	8.6%	4312	0.9%

Source: 2000 U.S. Census

The U.S. Census counts each person as an inhabitant of his or her usual place of residence. This is generally where they live or sleep most of the time, not necessarily their place of legal residence. It is because of this definition that a large number of dwelling units in Holderness are classified as seasonal. While the homes may sometimes appear to be year-round housing, if an occupant does not claim the dwelling unit as a usual place of residence, it is generally defined as seasonal. Dwelling units for seasonal, recreational, or occasional use are defined by the U.S. Census as:

"...vacant units used or intended for use only in certain seasons or for weekend or other occasional use throughout the year. Seasonal units include those used for summer or winter sports or recreation, such as beach cottages and hunting cabins..."

Table II-2 clearly demonstrates the seasonal nature of the Lakes Region. Led by Moultonborough with 56% of the housing stock classified as seasonal, most towns in the region have in excess of at least 20% of their dwelling units devoted to seasonal use. The exceptions can be found in New Hampton and the more urbanized municipalities of Laconia and Plymouth. With 33% of all units classified as seasonal, Holderness ranks 6th (tied with Campton) out of the eleven area towns in number of seasonal units.

Figure II-1: Percent Change in Housing Units 1990-2000

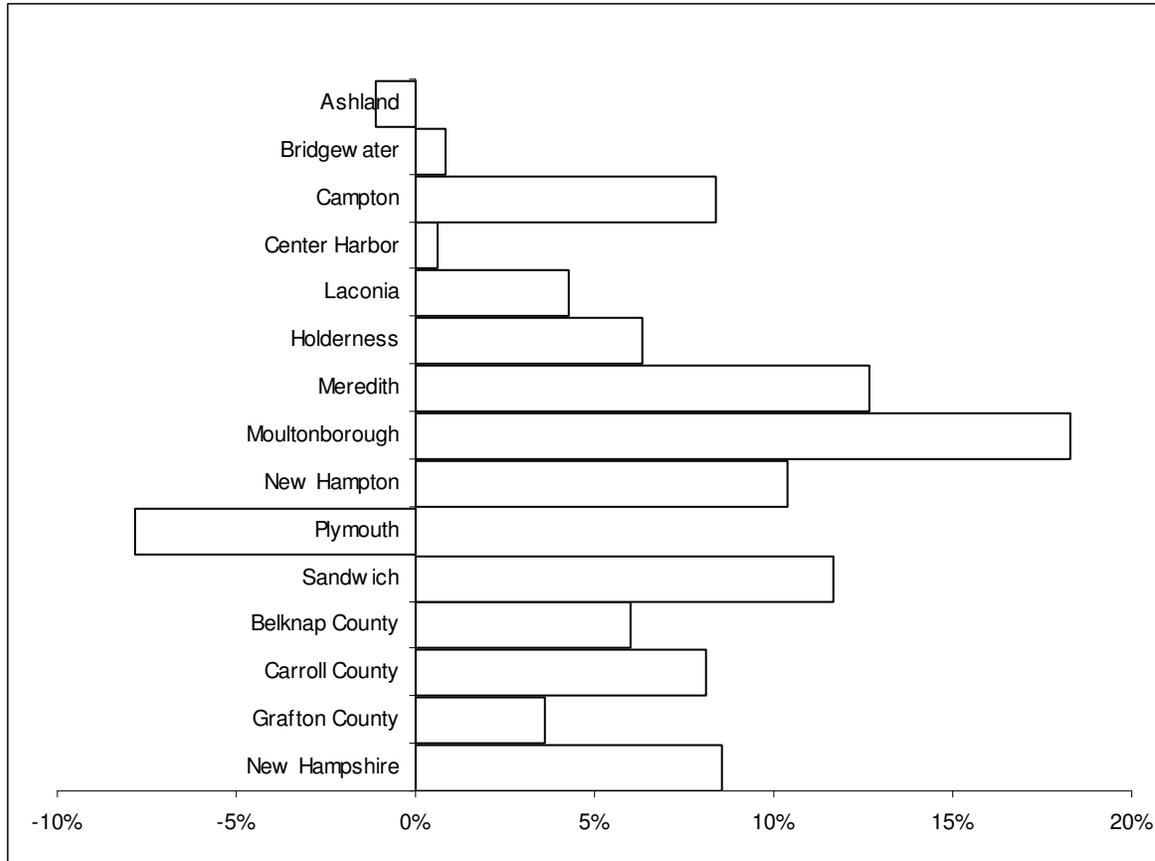


Table II-2: Year-Round and Seasonal Housing Units - 2000

Municipality	Year-round	Seasonal	Seasonal %
Ashland	900	249	22%
Bridgewater	430	420	49%
Campton	1,181	574	33%
Center Harbor	445	208	32%
Holderness	804	404	33%
Laconia	7,077	1,477	17%
Meredith	2,580	1,611	38%
Moultonborough	2,004	2,519	56%
New Hampton	764	180	19%
Plymouth	1,745	138	7%
Sandwich	605	360	37%
Belknap County	23,552	8,569	27%
Carroll County	19,640	14,887	43%
Grafton County	33,146	10,428	24%
New Hampshire	490,611	56,413	10%

Source: 2000 U.S. Census

2. Housing Characteristics

Housing Types

As seen in Table II-3, 1,033 (or 86%) of all housing units in Holderness were classified as single family homes in 2000. This represents a 4% increase in single family homes compared to the total housing stock since 1990. In a comparison of 2000 figures, the towns of Center Harbor, Moultonborough, and Sandwich have more than 90% of the overall housing stock in single family dwelling units. In comparison with the other area communities, Ashland, Plymouth and the city of Laconia had the lowest percentage of single family units, due mostly to the urban composition of housing. As reflected in these low percentages of single family homes, Ashland, Plymouth, and Laconia had the highest percentages of multi-family units, where one third or more of the total housing stock is multi-family housing. The 2000 Census indicates that there were 34 duplexes, 41 multi-family units (3 to 9 units at one address), and 100 manufactured homes in Holderness. Holderness had no housing in the “other” category, defined by the Census to include boats, recreational vehicles, vans, etc. The percentage of multi-family housing units in Holderness (6%) is well below that of the state (27%) and Grafton County (24%) while the percentage of manufactured and other housing units in Holderness (8%) were comparable to the state (7%) and Grafton County (9%).

Table II-3: Housing Types 2000

	Single Family Dwelling	Two to Four Units	Five to Nine Units	Ten or More Units	Manufactured or Other Housing	Total Housing Units	Percentage of Total Housing Units		
							Single Family	Multi-family	Manufactured or Other
Ashland	673	183	117	77	99	1,149	59%	33%	9%
Bridgewater	734	14	9	0	91	848	87%	3%	11%
Campton	1,235	111	79	67	267	1,759	70%	15%	15%
Center Harbor	608	0	5	3	42	658	92%	1%	6%
Holderness	1,033	50	25	0	100	1,208	86%	6%	8%
Laconia	4,719	1,743	630	1,225	237	8,554	55%	42%	3%
Meredith	3,469	235	116	87	284	4,191	83%	10%	7%
Moultonborough	4,270	57	35	15	146	4,523	94%	2%	3%
New Hampton	831	24	0	3	81	939	88%	3%	9%
Plymouth	984	366	192	105	254	1,901	52%	35%	13%
Sandwich	919	8	8	0	30	965	95%	2%	3%
Belknap County	23,710	3,160	968	1,563	2,720	32,121	74%	18%	8%
Carroll County	28,065	2,137	1,243	824	2,481	34,750	81%	12%	7%
Grafton County	29,308	4,859	2,605	3,209	3,748	43,729	67%	24%	9%
New Hampshire	365,532	68,388	27,581	49,194	36,329	547,024	67%	27%	7%

Source 2000 U.S. Census

Occupancy Status - Table II-4 presents data on the occupancy status for owned and rented housing units in the immediate area surrounding Holderness. Owner-occupied units are defined by the U.S.

Census as those that are either owned or being purchased by someone who currently lives in the unit. All other occupied units are classified as rentals, even if no rent is charged. In Holderness, rented housing units represent 22% of the total occupied units compared to Grafton County (31%) and New Hampshire (30%). Again, this is indicative of greater rental opportunities existing in the communities around Holderness, such as Ashland (43%), Laconia (43%), and Plymouth (44%) where the percentage of multi-family housing units is much greater.

Table II-4: Occupied Housing Units by Tenure

	Occupied		Total Occupied Housing Units	Rented Percent of Total Occupied
	Owned	Rented		
Ashland	483	370	853	43%
Bridgewater	352	62	414	15%
Campton	849	279	1,128	25%
Center Harbor	353	61	414	15%
Holderness	602	166	768	22%
Laconia	3,819	2,905	6,724	43%
Meredith	1,891	556	2,447	23%
Moultonborough	1,636	248	1,884	13%
New Hampton	624	102	726	14%
Plymouth	944	734	1,678	44%
Sandwich	451	113	564	20%
Belknap County	16,634	5,825	22,459	26%
Carroll County	14,278	4,073	18,351	22%
Grafton County	21,677	9,921	31,598	31%
New Hampshire	330,700	143,906	474,606	30%

Source 2000 U.S. Census

Unoccupied or vacant housing units are classified in a number of ways including: vacant for rent; vacant for sale; for seasonal, recreational, or occasional use; for migratory workers; rented or sold (not occupied); and “other” vacant. In all Lakes Region communities, the greatest number of vacant housing units are for seasonal, recreational, or occasional use.

Another important aspect of vacant housing is vacancy rates. In recent years vacancy rates in the area have significantly declined compared to the double digit vacancy rates experienced in the late 1980s. In Table II – 5, vacant housing units for rent and for sale were divided by the total number of vacant units to determine renter and owner vacancy rates. The other categories of vacant units combined typically represent a small portion of the total vacant units and are not detailed here.

Table II-5: Vacant Housing Units

	Vacant				Vacancy Rates	
	Total Vacant	For Rent	For Sale	Seasonal, Recreational or Occasional Use	Renter	Owner
Ashland	296	21	11	249	7%	4%
Bridgewater	436	0	11	420	0%	3%
Campton	631	5	24	574	1%	4%
Center Harbor	239	5	5	208	2%	2%
Holderness	440	5	6	404	1%	1%
Laconia	1,830	209	40	1,477	11%	2%
Meredith	1,744	27	31	1,611	2%	2%
Moultonborough	2,639	19	40	2,519	1%	2%
New Hampton	218	5	7	180	2%	3%
Plymouth	223	24	23	138	11%	10%
Sandwich	401	2	8	360	0%	2%
Belknap County	9,662	403	240	8,569	4%	2%
Carroll County	16,399	334	335	14,887	2%	2%
Grafton County	12,131	386	433	10,428	3%	4%
New Hampshire	72,418	5,218	3,252	56,413	7%	4%

Source 2000 U.S. Census

Generally, it is held that a 2% homeowner vacancy rate and 5% rental vacancy rate signifies a healthy housing market where there is ample room for turnover and choice in the housing stock. Lesser vacancy rates are associated with a tight housing market that may limit the availability of choice, and such is the case in Holderness. As illustrated in Table II-5, both rental and owner vacancy rates were low in 2000 for the rural communities in the area of Holderness, and within Carroll, Grafton, and Belknap Counties. Holderness had the lowest owner vacancy rate (1%) and was among four other communities (Bridgewater, Campton, Moultonborough, and Sandwich) with 1% or less vacancies for rental units.

Condition - The condition of the overall housing stock is just as important as the number and type of housing units found in town. There are a number of variables which can be examined in this effort to identify substandard housing. Among these variables are the number of persons per room in occupied units, the age of units, and those units without complete plumbing facilities. Each variable is considered in detail.

1. Density – A basic measure of overcrowded conditions is housing units that have more than 1.01 persons per room. Table II-6 details overcrowded units between 1980 to 2000, showing the number of units and overcrowded units as a percentage of total occupied units. The general trend has been a decrease in overcrowded units during this time period. As a percentage of occupied units, in area communities, only Ashland and Meredith experienced an increase of overcrowded units between 1990 to 2000. In 1980, 16 units or 2.7% of all occupied housing units in Holderness were found to have more than 1.01

persons per room. By 1990, the number had dropped to 7 (1.1%) and by 2000 it declined again to 2 units or .03% of the occupied housing units.

Table II-6: Overcrowded Housing Units

Municipality	1980			1990			2000		
	Occupied Units	Overcrowded Units		Occupied Units	Overcrowded Units		Occupied Units	Overcrowded Units	
		Number	Percent		Number	Percent		Number	Percent
Ashland	690	25	4%	770	11	1%	853	17	2%
Bridgewater	238	5	2%	311	5	2%	414	0	0%
Campton	653	22	3%	900	22	2%	1,128	13	1%
Center Harbor	292	10	3%	377	8	2%	414	2	0%
Holderness	587	16	3%	656	7	1%	768	2	0%
Laconia	5,632	130	2%	6,176	110	2%	6,724	115	2%
Meredith	1,741	56	3%	1,936	26	1%	2,447	40	2%
Moultonborough	862	13	2%	1,164	14	1%	1,884	7	0%
New Hampton	453	20	4%	590	22	4%	726	8	1%
Plymouth	1,431	39	3%	1,646	28	2%	1,678	25	1%
Sandwich	381	6	2%	456	7	2%	564	7	1%
Belknap County	15,573	396	3%	18,839	325	2%	22,459	344	2%
Carroll County	11,074	269	2%	14,253	271	2%	18,351	234	1%
Grafton County	23,221	541	2%	27,542	519	2%	31,598	409	1%
New Hampshire	323,493	7,826	2%	411,186	6,610	2%	474,606	7,615	2%

Source 2000 U.S. Census

2. *Age of Housing Units* - A good indication of overall housing condition is the age of the housing stock. Although there are many older homes in Holderness which by no means could be considered substandard, a large percentage of older homes in a town can indicate a lower than typical amount of investment in new housing in recent years. As seen in Table II-7, 32.7% of the structures in Holderness were constructed prior to 1940. This is a higher rate than found in the state overall, but comparable to rates found in many of the area towns. Other measures of the age of the housing stock include the median year that structures were constructed and the percentage of structures built since 1980.

The median year of structures built in Holderness is 1963, which indicates that the housing stock is older than the stock in each of the three counties and the state overall. The only municipalities to have an older housing stock were Laconia and Sandwich. The final measure of overall age of dwelling units is the percentage constructed since 1980. As seen in the table, only 28.9% of all structures in Holderness have been constructed since that year. In comparison with municipalities in the immediate area, only Laconia experienced fewer new residential development as a percentage of the total housing units. Table II-7 also indicates that the housing boom of the 1980's has generally slowed in all comparison areas with the exception of Moultonborough, New Hampton, and Sandwich where a greater percent of housing stock was built in the 1990's compared to the 1980's.

Table II-7: Age of Housing Units

Municipality	Median Year Structure Built	Percent of Stock Built in 1980's	Percent of Stock Built in 1990's	Percent Built Since 1980's	Percent Built Before 1940
Ashland	1964	27.5	7.2	34.7	36.5
Bridgewater	1976	31.4	13.6	45.0	18.5
Campton	1980	34.2	16.1	50.3	34.2
Center Harbor	1968	20.4	11.7	32.1	20.4
Holderness	1963	18.1	10.8	28.9	32.7
Laconia	1956	16.3	10.8	27.1	35.4
Meredith	1970	18.8	15.1	33.9	17.1
Moultonborough	1978	22.1	23.2	45.3	11.0
New Hampton	1977	20.1	25.3	45.4	24.1
Plymouth	1966	18.5	13.0	31.5	32.8
Sandwich	1957	14.3	15.1	29.4	42.3
Belknap County	1971	21.2	13.6	34.8	21.2
Carroll County	1975	25.9	16.1	42.0	19.4
Grafton County	1971	23.8	12.2	36.0	28.0
New Hampshire	1971	21.5	13.4	34.9	23.7

Source: 2000 U.S. Census

3. *Complete Plumbing*- The last variable with regard to condition is the change in the number of units without complete plumbing or kitchen facilities. Incomplete plumbing is defined by the U.S. Census as missing one or more of the following 1) hot and cold piped water; 2) bathtub or shower; and 3) flush toilet. In Holderness the U.S. Census indicates 20 units lacked complete plumbing facilities in 1990. By contrast there were a total of 33 units with incomplete plumbing facilities in 2000. Table II-8 shows that 15 of these units were occupied in 1990, while 10 were occupied in 2000. This indicates that the majority of units without complete plumbing are likely seasonal in nature and that the number of occupied units lacking complete plumbing facilities has declined between 1990 to 2000.

Table II-8: Holderness Housing Units Lacking Complete Plumbing Facilities 1990-2000

1990			2000		
Total Housing Units	Vacant Housing Units	Occupied Units	Total Housing Units	Vacant Housing Units	Occupied Units
20	5	15	33	23	10

Source: 2000 U.S. Census

Cost of Housing – According to the U.S. Census, the median value of owner-occupied homes in Holderness increased from \$49,600 in 1980 to \$148,400 in 2000 as indicated in Table II-9. It is interesting to note that in 1980, Holderness home values were just over 3.3% greater than the statewide median, while by 2000 had increased to approximately 11.3% above the statewide median. Holderness home values have remained the same in relative ranking within the eleven town immediate area as the third highest after Moultonborough and Center Harbor. Median value of owner occupied housing in

Holderness has consistently been above the average in Belknap, Carroll, and Grafton Counties. Holderness also experienced the greatest increase from 1990 to 2000 in median home values (22.9%) in the comparison area.

Table II-9: Median Value of Specified Owner Occupied Housing Units

Municipality	1980 Median Value of Owner Occupied Units	1990 Median Value of Owner Occupied Units	2000 Median Value of Owner Occupied Units
Ashland	\$34,500	\$84,600	\$85,100
Bridgewater	\$40,300	\$131,300	\$134,700
Campton	\$40,500	\$108,500	\$101,800
Center Harbor	\$47,700	\$135,900	\$150,000
Holderness	\$49,600	\$120,700	\$148,400
Laconia	\$41,500	\$108,500	\$96,700
Meredith	\$47,800	\$122,600	\$136,500
Moultonborough	\$56,800	\$145,200	\$158,000
New Hampton	\$40,200	\$103,900	\$107,800
Plymouth	\$42,400	\$104,500	\$92,300
Sandwich	\$50,000	\$129,800	\$140,900
Belknap County	\$43,600	\$114,000	\$109,600
Carroll County	\$45,200	\$119,000	\$119,900
Grafton County	\$40,600	\$105,700	\$109,500
New Hampshire	\$48,000	\$129,400	\$133,300

Source: 2000 U.S. Census

Table II-10: Median Rental Costs

Municipality	1990 Median Rent	2000 Median Rent
Ashland	\$427	\$485
Bridgewater	\$567	\$625
Campton	\$510	\$591
Center Harbor	\$446	\$661
Holderness	\$513	\$584
Laconia	\$501	\$570
Meredith	\$455	\$553
Moultonborough	\$545	\$630
New Hampton	\$494	\$608
Plymouth	\$510	\$489
Sandwich	\$525	\$575
Belknap County	\$510	\$588
Carroll County	\$521	\$552
Grafton County	\$479	\$560
New Hampshire	\$549	\$646

Source: 2000 U.S. Census

According to the U.S. Census the median rent in Holderness also increased over the ten year period, rising 13.8% from \$513 to \$584. Increases in rent in the immediate region ranged from 48.2% in Center Harbor to a low of -4.1% in Plymouth. At \$584, the median rent is comparable with the median rent in Belknap County (\$588) and slightly higher than the Carroll (\$552) and Grafton (\$560) County median rent. The median rent in Holderness was the sixth highest in the comparison area after Center Harbor, Moultonborough, Bridgewater, New Hampton, and Campton. The next section explores the impacts of housing and rental costs.

3. Housing Needs/Affordability

Regional Housing Needs

Within RSA 672:1, it is stated that: *"All citizens of the state benefit from a balanced supply of housing which is affordable to persons or families of low and moderate income. Establishment of housing which is decent, safe, sanitary and affordable to low and moderate income persons and families is in the best interests of each community and the state of New Hampshire, and serves a vital public need. Opportunity for development of such housing, including so-called cluster housing and the development of multi-family structures, should not be prohibited or discouraged by use of municipal planning and zoning powers or by unreasonable interpretation of such powers."*

In essence, a town must provide for the existence of low to moderate income housing opportunities. In Holderness, multi-family dwellings of up to eight (8) units in any one structure are a permitted use in the General Residential and Commercial Districts, while manufactured housing is a permitted use in the General Residential, Rural Residential,

Commercial Districts. In addition, Cluster Residential Development is a permitted use in the General Residential and Rural Residential districts. In allowing a variety of housing opportunities by permitted use throughout much of Holderness, it is felt that there is ample opportunity within the town for the creation of affordable housing.

The NH Community Development Finance Authority (CDFA) defines "affordability" in the NH Community Development Block Grant Program Rules as spending no more than thirty percent (30%) of the gross income of a low or moderate income household on housing costs. The rules define housing cost as including monthly mortgage payments or rents, property taxes, insurance, heat, and utilities. Moderate income is further defined by the US Department of Housing and Urban Development (HUD) as being less than 80% of the median area family income. Low income is defined by HUD as earnings of 50% or less than the average wage for families in the area or the area median family income.

The Lakes Region Housing Needs Assessment (2004) indicated that 117 (30.4%) of the 385 single family home owners in Holderness in 2000 earned less than 80% of the area median family income. Of these homeowners 63 (53.8%) pay more than 30% of their income on housing costs and 51 (43.6%) pay more than 35% of their income on housing costs. These percentages were higher than all other Lakes Region communities in Grafton County and the Lakes Region overall. It is presumed that some residents choose to pay higher percentages of their income to live in Holderness because of the quality of life and services such as the school system that the community offers. In terms of renters in 2000, 65 or 40% of the 163 total renters paid more than 30% of their income for gross rent (cost of rental housing with all utilities, excluding telephone). This was comparable to Lakes Region communities in Grafton County and below the 55% for the Lakes Region overall.

Housing affordability issues are felt most by those with the lowest incomes in the rental market. This is especially true during periods when housing demand is greater than supply which drives up housing costs. An example of this is that during the period between 1990 and 2000, the Lakes Region experienced a 29% increase in the number of renters who earn less than 50 % of the area median family income. During the same timeframe, renters earning less than 50 % of the area median family income and who pay more than 30% of their income for gross rent increased by 13%. Table II-11 indicates that approximately 40% (39.9%) of the renters in Holderness make less than \$25,520 per year. This annual family income figure represents the amount of income required to rent a market priced two bedroom apartment in Grafton County, paying not more than 30 % of a family's income on rent and utilities (gross rent).

Table II-11: Holderness Housing Rent Affordability

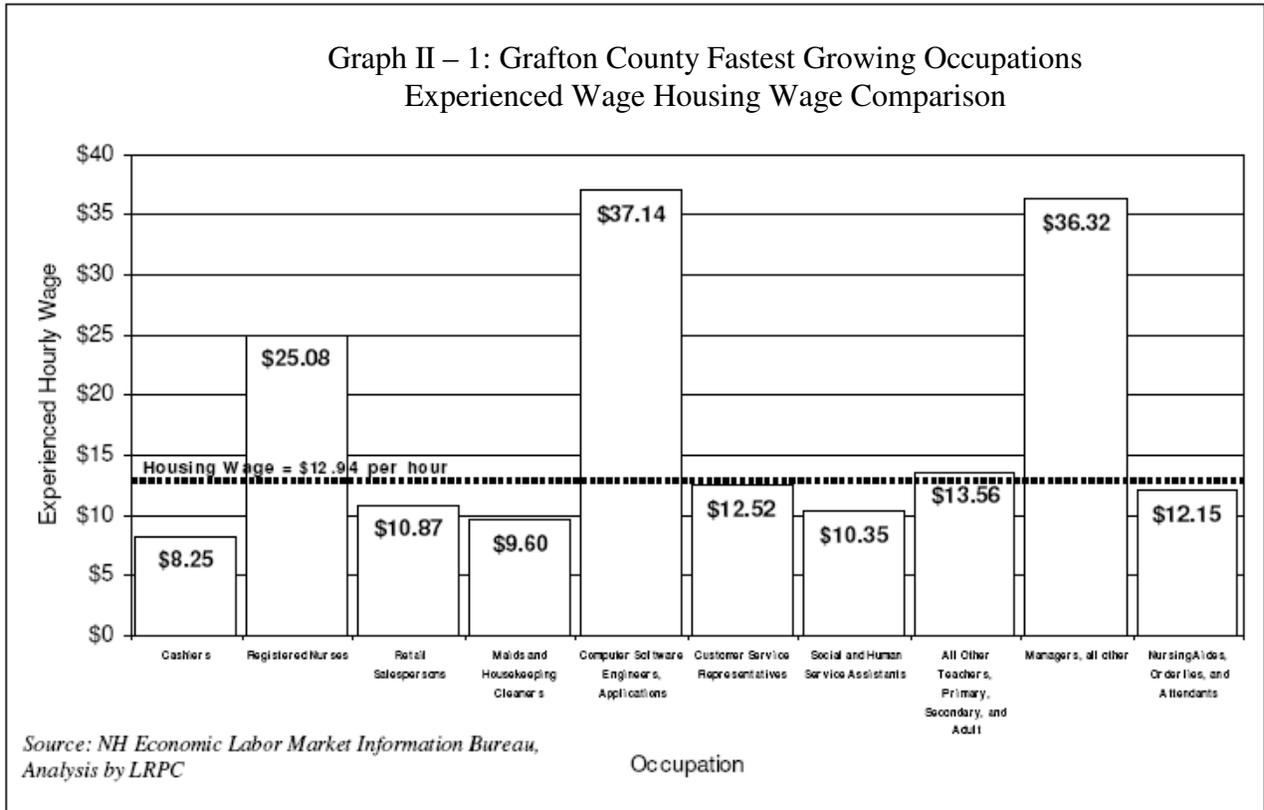
Holderness, NH				Number of Households		
				Total Households	Renter Households	Renter Households - Percent of Total Households
				768	163	21%
Affordable Monthly Housing Cost by Percentage of AMFI				2000 Median Family Income		
30% AMFI	50% AMFI	80% AMFI	100% AMFI	Annual	Monthly	30% of AMFI
\$336	\$560	\$895	\$1,119	\$44,766	\$3,731	\$13,430
Grafton County Fair Market Rent (FMR) for a Two-Bedroom Unit \$638 per month				Renter Households		
				Renter Median Income	Income Needed to Afford 2BR FMR	Percent of Renters Unable to Afford 2BR FMR
				\$30,469	\$25,520	39.9%
				Affordable rents using the generally-accepted standard of spending not more than 30% of income on housing costs.		

Sources: Census 2000, www.nhhfa.org, www.huduser.org

An important aspect of rental affordability is the age of renters who have a high housing cost burden (pay more than 30% of family income for gross rent). In 2000, approximately 90 % of the renters with a high housing cost burden were 18 to 65 years of age. Of the working-age renters with a high cost burden nearly 70 % (68.8) were in the 35-54 years of age bracket. The consideration of affordable housing for working citizens in a given area is a broader approach than affordable housing which is typically used to refer to housing with covenants, subsidies, or other mechanisms to ensure availability to low and moderate-income households at a cost that leaves an adequate amount of household income for other necessities. Workforce housing includes affordable housing, market rate housing, and mixed income housing in various forms such as starter homes, townhouses, condominiums, and apartments.

Wages and occupations are important aspects of workforce housing. The Lakes Region Housing Needs Assessment (2004) explored the types of occupations that are projected for growth according to the NH Economic Labor Market Information Bureau. A 2002 housing wage was calculated by LRPC for Grafton County. The housing wage is interpreted as the hourly wage needed to afford a two-bedroom, fair market rent, assuming a 40 hour work week. Graph II – 1 shows the calculated housing wage as compared to the 2002 wages earned by an experienced worker in the top ten fastest growing occupations 2000 to 2010. The graph indicates that in six of the ten fastest growing occupations experienced workers earn less than the calculated housing wage. This suggests that workforce housing affordability will continue to be a significant issue in the future in Holderness, where rents have typically exceeded the average for Grafton County and many other area communities.

Graph II – 1: Grafton County Fastest Growing Occupations
Experienced Wage Housing Wage Comparison



State/Federal Housing Programs

While it appears that the condition of housing is improving in Holderness, there is still a need for the improvement of certain substandard housing units (i.e. dilapidated exterior condition, plumbing and electrical deficiencies, etc.) throughout the town. A method used successfully in other New Hampshire municipalities is applying for Community Development Block Grant funds or similar funding sources in order to foster rehabilitation of substandard housing units occupied by low to moderate income persons. Eligible projects include the following:

- Rehabilitating housing which does not meet HUD Section 8 Existing Housing Quality Standards;
- Improving the efficient use of water and energy;
- Inspecting, testing and abating lead-based paint;
- Exterior painting;
- Providing elderly or handicapped access;
- Historic preservation; and
- New construction with certain restrictions.

Among those eligible for financial assistance (grants and loans) through this program include low to moderate income households which own a single family home and landlords who agree to rent to low or moderate income households at an affordable rent for a specified period of time following completion of the project. Specific national

objectives of the CDBG program include the provision of a direct benefit to low and moderate income persons or households; the prevention or elimination of slums and blight; and the elimination of conditions which seriously and immediately threaten the public health and welfare. In addition, specific state objectives include the implementation of a housing and development plan (which incorporates much of the data found in the Master Plan) and conformance with the master plan and zoning ordinance; preserving and promoting existing neighborhoods and community centers; restoring and preserving properties which have historic, cultural, architectural or aesthetic value; solving community problems with long-term benefits and innovative solutions; successfully raising or matching dollars and resources from public and private sources; and funding needed projects for which other private or public funding shall not be available.

Other programs which could be applicable in Holderness include New Hampshire Housing Finance Authority's Single Family Mortgage Program, which works to provide low interest mortgage financing for first-time home buyers. In addition, Habitat for Humanity has been very active in the Lakes Region by providing low income families a home through sweat equity.

Accessory Apartments - A change in zoning which permits accessory apartments can also result in the availability of more affordable housing in Holderness. An accessory apartment, also known as a mother-in-law apartment, is different than a duplex. Accessory units generally comprise a relatively small portion of a larger home. In many cases, they may be placed in an attic or partial basement.

The standards in the zoning ordinance for such apartments could specify a minimum and a maximum square footage. The minimum is important to assure standard living space. A maximum could help ensure that the number of persons living in such an apartment is limited. The ordinance may also want to specify the percentage of the primary dwelling's floor space the accessory apartment can occupy. This would clarify that such units are not de facto duplexes which have different parking, water and sewer needs than an accessory apartment. Finally, the availability of adequate water and sewerage disposal must be confirmed. An accessory apartment is only warranted if property conditions permit. The necessity for this type of housing unit will undoubtedly increase as median age increases in the future. As the baby boom ages, accessory apartments may be a very common lifestyle choice.

4. Dwelling Unit Projections

An adequate supply of housing is critical to maintaining healthy families, a viable workforce, and a stable socioeconomic environment. The projection of the future number of new housing units is important because an awareness of the total number and type of units that might be constructed in Holderness will help residents of the town to better prepare for future growth.

Population based housing supply projections developed by the Lakes Region Planning Commission indicate that a total of 5,306 owner occupied and 2,178 renter occupied units

will be needed to house the region’s projected 2010 population. Regional building permit activity from 2000 to 2002 indicate building activity that exceeds the ten-year (2000 – 2010) projected average annual production. How the projected future supply is distributed in the region, across income groups, is related to a host of economic factors including employment opportunities and affordability.

Table II -12 indicates the results of the population based housing supply estimates for Holderness. The projection is based on the following assumptions:

- 1) a declining household size (consistent with local trends);
- 2) the same mix of owner occupied and renter occupied units as existed in 2000;
- 3) vacancy rates will increase to typical levels (1.5% owner and 5% renter); and
- 4) housing stock replacement will be 1.7% of the 2000 supply.

Table II - 12: Holderness Population Based Housing Supply Projections 2002 - 2015

	Population	Owners	Renters	Total
2015 projection	2,280			
2000 Group Quarters Ratio	-26			
Population in Households	2,254			
Projected Household Size	2.4			
Projected Households	939			
Percentages Owner/Renter Occupied		79%	21%	100%
Projected Owner/Renter Units		742	197	939
Projected with Vacancies		753	198	951
Projected with Replacement Needs		766	202	967
2000 Supply Occupied		-605	-163	-768
2000 Supply for Sale or Rent		-6	-5	-11
Net Production Need		155	34	188
10 Year Annual Average Production		15	3	19

5. Summary

The data found in this chapter show the composition of the housing stock in Holderness is similar to towns in the immediate region. Holderness has a high percentage of single family houses compared to the more urban communities in the area, but comparable to other area rural communities. While the number of multifamily houses is comparatively low, the amount of manufactured housing in Holderness is slightly above that of New Hampshire. The number of housing units has increased since 1990 at the lower rate experienced in most area towns. The average cost of a home in Holderness is higher than the average in most area communities, Grafton County and the state.

While vacancy rates have been generally low statewide as a result of what many refer to as an acute housing shortage, the housing vacancy rate in Holderness was lower than all other area communities, Grafton County and the state. The rental vacancy rates on the other hand were comparable to the other rural communities in the area.

With regard to the condition of housing, the 2000 U.S. Census has shown that there are fewer substandard dwelling units in Holderness than there were in 1990 despite the overall growth in the number of dwelling units. Substandard units, as measured by the number of units with more than 1.01 persons per room and the number of units without exclusive plumbing facilities, both improved between the 1990 and 2000 Census.

Median home values increased by 22.9%, and average rental costs rose by 13.8% from 1990 to 2000. As costs have increased, the percentage of income required to pay the costs associated with shelter has also risen. Housing affordability is a difficult issue. In New Hampshire, affordable housing is defined as spending no more than 30% of a household's gross income on housing costs. According to the U.S. Census, there are many residents in Holderness who report spending even higher percentages of their income on housing.

In Holderness, multi-family dwellings of up to eight (8) units in any one structure are a permitted use in the General Residential and Commercial Districts, while manufactured housing is a permitted use in the General Residential, Rural Residential, Commercial Districts, which encompass all of Holderness except for the River Corridor District. In addition, Cluster Residential Development is a permitted use in the General Residential and Rural Residential districts. By allowing a variety of permitted housing opportunities throughout much of Holderness, it is felt that there is ample opportunity within the town for the creation of affordable housing. Beyond these regulatory approaches, the housing chapter describes several programs which could help provide more affordable and better quality housing for low and moderate income persons.

Finally, the number and type of future new housing units were projected by the Lakes Region Planning Commission using the population projections generated by the NH Office of Energy and Planning (NH OEP). The NH OEP projections indicate that by 2015 the population in Holderness will be 2,280. Along with the increased population comes the need for additional housing. It is projected that 155 single family homes, and 34 multi-family units will be needed to meet additional population demands for housing.

6. Recommendations

The following recommendations are intended to further the stated goals and objectives related to housing opportunities in Holderness.

- Consider applying for future Community Development Block Grant funds or similar funding sources in order to foster rehabilitation of substandard housing units occupied by low to moderate income persons. Programs operated by the New Hampshire Housing Finance Authority, Habitat for Humanity, and other housing programs also provide opportunities for improving the condition of housing.
- Require occupancy permits for the completion of the building permit process.
- Investigate adoption of a town building code. The enactment of such a code would ensure that all new housing is soundly constructed, both as a means to guarantee that all units are safe from fire hazard as well as promoting construction which avoids the potential for future blight.

Chapter III: Economic Base

Holderness is predominantly a rural, residential community with scattered retail and commercial establishments. The majority of these businesses are located in either the commercial district in the north end of town (on the Campton border) or in the village proper. The town has a unique geographic makeup. Within its borders are White Oak Pond, portions of Big Squam and Little Squam Lakes, part of the Pemigewasset River, and several peaks of the Squam Mountain Range. Located in the abutting town of Plymouth is Plymouth State University. Within commuting distance are Concord, the state capitol, and Laconia, one of central New Hampshire’s largest cities. Boston is a two-hour drive away and the Maine and Vermont borders a one hour drive. Holderness essentially occupies the geographic center of New Hampshire.

Some of the background information gathered for this chapter was derived from the Business Community Forum of October 5, 2005. A list of the businesses invited to the Business Community Forum is provided at the end of this chapter (page 4).

1. Tax Base

Holderness’ economic base is a reflection of this unique geographic picture. The economic base of any community can be defined as all those sources from which the town receives revenue. Generally, if an economic base is diverse, the per capita tax burden is lower (although notable exceptions would be one company towns which have low taxes.) In Holderness, the primary source of revenue is from property taxes, and the breakdown of property tax sources shows the dramatic influence of the town’s geographic location and its environmental assets.

Table III-1 shows the town’s unusually high dependence on lakefront, seasonal properties for tax revenue. Seasonal properties are defined as those whose owners claim primary residence in another location. These owners do not vote locally or use the local school system. Their demand on town services is minimal. They do, however, pay more than half the town’s total property tax. Holderness is a desirable location for a second or vacation home because it is relatively close to major metropolitan areas yet offers a peaceful, rural, lakeside setting with excellent opportunity for outdoor recreation.

Table III - 1: Holderness Tax Base, 2005*

Category	Number of Units**	Percent of Units	Property Value (\$)	Taxes (\$)	Percent of Property Tax	Average Tax Burden / Unit (\$)
Year Round	755	56%	207,763,148	2,744,046	39%	3,634
Seasonal	541	40%	272,280,849	3,659,455	52%	6,764
Commercial/ Institutional	51	4%	48,453,639	651,217	9%	12,769
TOTALS	1,347	100%	528,497,636	7,054,718	100%	23,167

Source: Holderness Tax Records, 2005

*These data do not include electric power companies' property (poles, wires, equipment, etc.), Science Center of NH, Squam Lakes Association properties and others.

** Units include land and buildings

Based on the 2005 tax record, seasonal properties represent 40% of the units in Holderness and 52% of the property tax. Year-round residences represent 56% of the units and only 39% of the property tax. The average 2005 tax burden per seasonal property was \$6,764 and the average per year-round unit was \$3,634 or almost half the average seasonal property tax.

Commercial and institutional properties represent another source of tax revenue for the community. They contribute 9% of the total property taxes, but on a per unit basis, pay a significantly higher average than residential categories (Table III-1). In 2005, the average tax burden per unit for commercial properties was \$12,769 annually. A high percentage of these commercial establishments depend upon tourism, an industry which dominates the area.

Year-round residences, as shown in Table III-1, represent the lowest per unit tax burden of all categories; yet demand the most in town services. The costs of schools, town services and government required by the average single family home are generally higher than the revenues received by that home.

Two conclusions can be drawn from the above. One, Holderness is a predominantly residential community that depends on its seasonal properties for the majority of its tax dollars. And two, the natural beauty of the Squam Lakes and surrounding territory results in a local economy that is seasonal and tourist based.

2. Forces that Influence Holderness' Economic Base

There are three major factors that influence the economic base of Holderness. These are geographic location, tourism, and education. While these three do not account for the entire economic base of the town, they represent the leading influences.

Geographic Location and Natural Setting - Without a doubt, location and settings are the most significant factors guiding the town's economic base. The Squam lakes and mountain range as well as the town's relative proximity to major metropolitan areas via I-93, make Holderness a very desirable community for vacationing and for owning a second home. As stated above, owners of seasonal properties pay the greatest portion of the town's tax revenues. As a spillover effect, they also require the services of local builders, property maintenance contractors, and recreational facilities such as marinas, golf courses, etc.

Ironically, the town's heavy dependence on its seasonal population somewhat hinders its commercial base. Because the resident population is too small and the seasonal population too fleeting, many businesses find it difficult to maintain a viable year-round base. Perhaps something could be done to encourage winter recreational opportunities, thus ensuring a constant flow of visitors all months of the year.

Maintaining the natural beauty and pristine quality of the area is a key aspect of the local economy.

Tourism – Holderness residents both recognize and appreciate the fact that tourism generates most of the commercial business in the town – especially in the village and areas closest to Squam Lake and White Oak Pond. Holderness is a vacation destination. Its lakes and mountains provide a continuous draw to tourists, vacationers and sightseers. The village offers small retail shops, dining establishments, and a summer performing arts theater. Walking paths, trails, and a public boat launch on Big Squam also enhance this aspect of the economy.

In regard to industrial development, Holderness does not offer an attractive site. The town is hilly in terrain; it lacks (and has no immediate plans for) a municipal infrastructure, i.e., water and sewer systems, etc., and it lacks a large, well-trained labor force. It should be noted, however, that sizable retail establishments and shopping areas are readily available in neighboring communities.

Education – The final major force on the economic base is education. Although Plymouth State University, Holderness School, Holderness Central School, and the Squam Lakes Natural Science Center contribute relatively little to the local tax base. They do have a significant influence on those who visit and/or reside in the town. They bring in related businesses and support services. They provide employment opportunities for the local population. In addition, the town’s elementary school (Holderness Central) enjoys an excellent reputation and thereby attracts young families to settle in the community.

3. The Future

Holderness will forever be the beneficiary of its location and the natural assets of the Squam Lakes Region. However, the town must work diligently to maintain the beauty and environmental quality of the area - a key component in maintaining both healthy tourist interest and the seasonal property market. How well the town protects its natural assets will determine the strength of the seasonal property market and, hence, the value of those properties. Careful zoning, subdivision, and other regulations will safeguard this vital aspect of the town’s economic base.

Holderness also benefits from the fact that two major educational institutions are located close by: one within its borders (Holderness School); the other across the Pemigewasset River in Plymouth (Plymouth State University). Holderness can foster an atmosphere compatible with these and other tax exempt institutions, but at the same time should be aware of the negative impact any future expansion (of these types of institutions) could have on its tax base.

The town of Holderness cannot directly influence all factors which affect its economic base. It can, however, strengthen that base in a logical and thoughtful way, by concentrating efforts on maintaining the area’s environmental quality and thereby supporting the seasonal property market and tourism.

4. Recommendations

- Assist the village business community to address infrastructure issues which are important to the long-range viability of businesses in that area (parking, public restrooms, and septage disposal).
- Encourage the development of low impact recreational activities. These should encompass all seasons and include swimming, small craft boating, skating, fishing, picnicking, tennis, hunting and the networking of trails for walking, jogging, hiking, cycling, snowshoeing, cross-country skiing, snowmobiling and horseback riding.
- Encourage and promote low-impact recreational use of properties under current use and other protected lands.
- Encourage conservation easements to protect the environment.

Businesses and business contacts invited to the Business Community Forum October 5, 2005:

ASHLAND

Ashland Insurance Center- Patti Murdock
Ashland Lumber Company- Dan Uhlman
Ash True Value Hardware- Rich Ash
Cheney House Bed & Breakfast
Common Man Restaurants- Sally Sawin
Palmer Cottage Place on Squam Lake-
Susan Smith
Surefine Food Market- Terry Comeau

CAMPTON

Alpine Lakes Real Estate- Joe Macord

HOLDERNESS

Bethel Woods Campground
Boulders Motel & Cottages
Cotton Cove Cottages- Russ & Pat Goss
David Driscoll Designs-David Driscoll
Ed Bernard Realty- Ed Bernard
Golden Pond Country Store- Eddie Benton
Golden Pond Tours
Inn on Golden Pond- Bill & Bonnie Webb
Duke Kimbell
K-Mac Construction- Kevin McBournie
Longhaul Farm- Lorrie Downs

Manor on Golden Pond- Mary Ellen Shields
NH Colonials- Dana Armstrong
Rockywold- Deephaven Camps - John
Jurczynski
Squam Boat Livery, Inc- Jeff Keefer
Squam Lake Inn- Rae Andrews
Squam Lakes Association- Priscilla
Bartholomew
Squam Lakes Auto- Randy Currier
Squam Lakes Boat Tour- Joe Nassar
Squam Lakes Conservation Trust
The Inn at Bethel Woods- Donna Toomey
TH'S'L DO Cottage- Lorri Downs
Walter's Basin- Sean Pitts
Yankee Trail Motel & Restaurant- Bill &
Sharrie Waldrip

PLYMOUTH

Best Inn- Flo Hunter
Bill Driscoll Associates
Common Man Inn- Lisa Forbes
Cynthia Dussault

Chapter IV: Town Departments & Facilities

The Lakes Region Planning Commission gathered information for the town Departments and Facilities chapter through a survey that was distributed to each municipal department head. Although many “needs” were submitted by department heads during this survey it was felt that most of these should be considered in the Capital Improvements Program (CIP) or through the annual budget request process. Therefore they are not listed in this Master Plan. All departments must continue to update their capital improvements. Maintaining present equipment and facilities is a need that should be addressed with regular annual review.

The town employs a total of 14 full-time and 12 part-time employees. In addition, the schools employ 35 full-time and 15 part-time personnel. A description of each department follows with a summary of the survey information.

1. Town Administration

Facility

The town administration in Holderness is located in the Livermore Grange Hall on a 0.9 acre parcel. It is a wood-framed building renovated to include two floors of about 2,500 square feet each.

The basement floor consists primarily of offices. These offices include:

- Town Clerk/Tax Collector
- Selectmen/Selectmen’s Secretary
- Town Administrator
- Treasurer
- Compliance Officer/Tax Maps
- General Assistance
- Recreation Director
- Vault
- A woman’s bathroom and a men’s/unisex bathroom (handicapped equipped)

The first floor consists of:

- Main Hall
- Kitchen
- Unisex bathroom accessible by an outside ADA ramp from the main hall on the first floor.

The seating capacity in the Main Hall is 75 persons. The septic system was installed in 1974, and has 650 gallons per day (GPD) capacity with a leach field size of 15' by 20' (300 square feet). There is paved and striped off street parking adjacent to the building for approximately 49 or more cars. The lot is significantly covered by the building, parking and septic system. The lot is bisected by a road/right of way to abutting properties. At the rear of the lot is a small carriage/storage building of approximately 520 square feet with an attached carport for covered storage (150 square feet).

Staff

Table IV- 1: Current Staff (4.4 FTEs)

Full Time Employees	Part Time Employees
Town Administrator	Deputy Tax Collector/Town Clerk
Municipal Secretary	Treasurer/Bookkeeper
Tax Collector/Town Clerk	Welfare Officer
	Recreation Director

Source: Holderness Town Administrator

Future Anticipated Staff (five to ten years)

In addition to the two full time and five part time positions listed in Table IV-1, the town employs a five member board of selectmen that receive a stipend, and a recording secretary for the planning and zoning boards on a contractual as needed basis. Currently the average weekly hours worked by the full and part time town employees (176 hours average hours worked per week) is equivalent to 4.4 full time employees.

The previous Town Administrator projected that there could be as many as twelve full time equivalent employees (FTEs) within the next ten years, dependent on population growth, citizen demand for community services, or changes in governmental regulatory requirements. Many part-time positions could become full-time. Other positions may need to be revised or added, such as a change to Town Manager, Town Planner, Sewer Administrator, Solid Waste/Transfer Administrator, Building/Code Administrator, etc. These increases may not necessarily reflect population growth, but rather citizen desires or complexity of government.

Areas of Deficiency

- The present facility may not be large enough if any of the anticipated future staff increases occur.
- The present facility may need an air purifier/dehumidifier on the basement floor due to restricted circulation in the office suites.
- Egress from the Town Hall from the lower driveway poses some danger due to limited line of sight. Pavement markings (striped as one-way suggest exiting from the paved upper level parking area onto NH Route 3 which provides much better site visibility).
- The location of the well and septic system do not comply with town and state regulations. Future use and stricter regulations for design and/or constriction could present a problem should the existing system fail. If the present system fails, replacement on-site would be impossible due to the site layout.
- The presence of a right of way crossing the property imposes restrictions on the full functioning capacity of the site.

Recommendations

- Continue to review and/or update all town staff positions in order to keep job descriptions and salary ranges current.
- Review the educational and experiential qualifications necessary for the town administrative positions to fulfill the complexities of town government.

2. Highway

Facility

The Highway Department is located on Beede Road. In 1996, the Highway Department was relocated to a new facility, which has the capability of housing all of the town's equipment. It also has a work area, storage rooms, a break room, office, and bathroom facilities. Many of these items were lacking at the former facility, which was located behind the Town Hall. The new facility also has a sand/salt storage building which is covered to keep the material dry, a sander hanging rack, and is large enough for on-site storage for gravel, dirt, and other materials.

Operations

The department provides the town of Holderness with both summer and winter road maintenance. A road reconstruction program allows the town to do major road repairs as needed. The staff is trained in many aspects of highway maintenance and repair. This allows the department to provide the residents of Holderness with quality, that other towns lack.

Staff

The staff operates under the direction of the Holderness Highway Road Agent, who works under the supervision of the Holderness Board of Selectmen. Besides the Road Agent, there are three full-time workers, one of whom is a foreman/lead person. There is also a seasonal, on-call, part-time position.

Equipment

It is important to replace town equipment as necessary, to maintain a usable, cost effective fleet. The following lists the vehicles and major equipment currently used by the Department of Public Works:

Vehicles

- 2004 Ford F-350
- 1998 Ford LN 8501
- 2004 Peterbilt 330
- 2006 Ford F-550

Major Equipment

- 1994 Galion Grader
- 1997 Cat Backhoe
- Sweepster
- York Rake
- Miller Drag Box
- Powered cut-off saw
- Plate compactor
- Crack sealing kettle

Areas of Deficiency

- The area around the facility becomes muddy in the spring.
- Storm water runoff needs to be directed into containment ponds to meet new EPA regulations.
- New EPA regulations require us to build a roof over the fuel tank, and containment for a fuel spill.
- New EPA/DES regulations require the department to provide a secure location for our fuel tank.

Radio coverage needs to be improved. This could be accomplished by the construction of a tower with a repeater or use the town of Ashland's tower and repeater system (this is a common need for Police and Highway Departments).

Recommendations

- The area around the highway building should be paved. The area leading to the salt storage side of the storage building should be paved.
- Prior to paving, re-grade the parking lot to direct all storm water runoff into a containment pond/area.
- Construct a roof over our fuel tank, and grade area to utilize the containment area/pond needed for storm water runoff.
- Place a gate to limit access to the Highway Department facility.
- Budget and staffing should permit regular road maintenance that includes ditch cleaning and roadside clearing including tree removal.

3. Solid Waste Disposal

Facility

The Transfer Station is located on Ta Da Dump Road. Until recently, a great area of concern was that the state of New Hampshire was mandating the town to close this facility and relocate it. At March Town Meeting 2003, it was decided by the voters of Holderness to close, cap and relocate the facility. This capping was to satisfy the state of New Hampshire Department of Environmental Services (NH DES) requirements. The voters also authorized the town to purchase a 10 plus acre parcel of land owned by Wilson Earl, located on East Holderness Road. Shortly after March Town Meeting, the state of NH DES and state legislature relaxed its requirements for the capping and closing of former landfills. The significance of this change is that the town does not have to close and cap the facility unless the test wells are found to be polluted. As a result, the town now has an option regarding the location of the transfer station.

Operations

The facility has greatly improved its recycling program. Aluminum cans are now separated from the co-mingle container. The cans are compacted, baled, and brought to a vendor. A vendor also purchases mixed paper. The large metal pile is now being purchased. A fee schedule has been established for construction debris, white goods, large bulky furniture, tires, propane tanks, TVs, and air conditioners. This is consistent with many other towns throughout New Hampshire. All of these programs offset the costs of operations.

With the addition of a temporary compactor we can now maximize container space, and reduce dependence on driver schedules for container pick-ups. This is important for weekend operations, when it would be difficult to swap out a full container with an empty, due to trash volume and vehicles using the facility. It is also very costly to remove containers on a weekend.

Staff

The staff operates under the direction of the Holderness Highway Road Agent. There is a full-time attendant, one part-time employees, all of whom are licensed with the Department of Environmental Services to operate the facility. Each employee is trained to oversee the proper disposal of materials and identify hazardous wastes.

Areas of Deficiency

- Containers are open to weather. Rain/snow adds to the weight of the container. Disposal costs are by the ton. There is also an additional transportation charge.
- Compactor storage space is not large enough to handle busy weekends.
- There is not a sufficient area to place reusable items, and offer them back to the public. This will create more space in our containers for other trash.
- The co-mingle container fills quickly with large bottles and the construction containers fill quickly with bulky chairs, couches, mattresses and unevenly placed wood.
- Earth under containers is constantly being disturbed by the removal and replacement of containers.
- No water is available on site.
- Layout of facility is not efficient.
- A backhoe is needed at the facility to maximize open-top container space.

Recommendations

- Construct a roof over containers, as well as the area where trash is placed into the compactor. Allow the public to access the containers and compactor under this roof.
- Place an additional compactor on site for immediate use when the other compacted container is full.
- Build a separate building for reusable items, or incorporate it into a larger structure that will be used to cover containers as described earlier.
- Place cement pads under containers or place containers into a building with cement floors.
- Provide a source of water for attendant needs as well as fire protection.

The best option would be to remain on the Ta Da Dump Road site. Most people, when asked, would prefer to use this location because it is centrally located.

Wherever a location is chosen for the facility, there will be a need to make the improvements listed above. If the facility remains at the current site, the layout needs to accommodate a single building to cover containers, a storage area to place reusable items, a covered area for both compactor access, an office for the operator, and bathroom facilities with running water.

An upper and lower design will allow users of the facility to deposit items directly into the containers from the upper level, and the trucks removing the containers will be done from the lower level.

4. Municipal Sewer System

The treatment of sewage has long been an issue for the town of Holderness. The reliability of this treatment affects health, the economy and the environment. The protection of the watershed (including Squam Lakes, White Oak Pond, and the Pemigewasset River) must continue to be paramount.

To protect the Pemigewasset River, a sewer district has been created for properties along River Street, the Intervale (NH Route 175A), and Holderness School. This district provides municipal sewer, which is tied into the wastewater treatment facility in Plymouth.

The rest of the town of Holderness has no municipal sewer system. Properties have their own septic systems. Many of these systems are old, and many could not be linked to a municipal system. The town of Holderness has recourse through state and municipal officials to inspect private septic systems and order that defective systems be restored to proper working condition. If the owner refuses, the town can take corrective action and hold the owner liable. Systems built since 1972 are covered by the town and state ordinances for compliance to safety standards.

Since 1971, there have been numerous studies related to the Holderness sewage issue. These studies in their entirety may be found at the town Office in a notebook entitled "Municipal Sewer". No clear solution for the town has been offered from these studies. The 1991 *Plan for Squam Lakes Watershed* has many recommendations concerning ways to protect water quality. One of these is the completion of a septic system inventory including both lakes, which the Squam Lakes Association has organized and funded. The Squam Lake Association undertook a "Wastewater Management Needs Assessment of the Squam Lakes Watershed in 2002, which reviewed current situations and explored future possibilities.

Recommendations

- Enforce the public health statutes as delineated in RSA 147 and the Zoning Ordinance to protect the health, welfare, and environmental concerns of the town of Holderness.
- Support specialized but adequate septic systems such as neighborhood systems or other creative engineered options.
- Develop and enforce a septic system inspection program.

5. Fire Department

Facility

The Holderness Fire Station is located on NH Route 3 on the west side of Holderness Village. The station serves police and fire and was constructed in 1996 and 1997 on the former property of Helen Miller.

The equipment area is approximately 4,924.8 square feet while an administrative area is 2,160 square feet. The side of the building has an area of 54'X37' or 1,998 square feet for future expansion.

The fire station has two offices, one for the Chief and one for the two Deputies, one training room that is shared by the Police Department and a full kitchen. Along side of the bay area is a room for EMS, an electrical room, a utility room and a boiler room.

Staff

The department consists of a Fire Chief/Compliance Officer with hours from 8 am to 4 pm, Monday through Friday. There are 30 personnel including two paramedics, four EMT1, and four EMT's. Dispatch of emergencies is from Lakes Region Mutual Fire Aid Association, located on NH Route 106 in Laconia, New Hampshire.

Since 1985, the Fire Department calls have more than doubled. In 1985, there were 113 calls. In 2004, there were 277 calls.

Table IV – 2: Fire Department Calls 1985-2004

Year	1985	1993	1999	2000	2001	2002	2003	2004
Fire and Rescue	63	42	63	70	84	125	122	177
Mutual Aid	26	30	26	16	26	24	47	32
Medical Service	24	90	99	108	105	90	108	128
Total	113	162	188	194	215	239	277	277

Source: Holderness Annual Reports

Rescue Service

The Holderness Rescue Squad consists of eleven persons and is adequate for the amount of calls received. The department has a new walk-in box acquired in 2000. This is a non-transport vehicle and carries all of the rescue gear, ropes, defibulator, air bags, oxygen, tools, splints, medications, etc.

Equipment

The department now has twelve major pieces of equipment:

- Engine 1 1931 Ford Parade vehicle
- Engine 3 1990 Mack Pump 15,000 gpm with 1,000 gallon water tank
- Engine 4 1997 Mack Pump 15,000 gpm with 1,000 gallon water tank
- Engine 5 1985 Mack Tanker 1,000 gpm with 2,500 gallon water tank
- Rescue 1 1988 Ford F-350
- Forestry 1 1952 Jeep GSA from state surplus
- Forestry 2 1962 Jeep GSA from state surplus
- Forestry 3 1993 Ford F-350 bought from Holderness Highway
- Boat 1 13' Boston Whaler with 25 hp outboard motor
- Boat 2 20' IMP Aztec Fire/Rescue 165 hp inboard outboard motor
- Bombardier Ski-Doo and Sled 2003 with double trailer
- 1997 Ford Expedition

Areas of Deficiency

- Although there is a large amount of water in town, it is not always accessible for fire fighting purposes.
- Hazardous materials, including chemical and bioterrorism, have become a relatively new issue for the fire department. Equipment and training need to be updated.
- Though not a true deficiency at this time, the community must be mindful of our town of Plymouth dependency for paid ambulance service and north Holderness automatic fire response covered under a mutual aid fire agreement (proximity of Plymouth fire station is much closer for service to this area).

Recommendations

- Investigate the need for a sub-station location at the north end of town
- Make changes to local ordinances and regulations that require more and better fire fighting water supplies.
- Obtain more water supply sites both in form of draft access and stand pipes.
- Update Hazard Materials training and equipment.

6. Police Department

Facility

The Holderness Police Department is located in the police/fire complex on NH Route 3, across from the Community Church. The police portion of the station consists of 2,025 square feet of space. There is a public lobby, evidence room, administrative workspace, conference room, officer's patrol work area, one bathroom with locker space, one holding cell, the Chief's office, a supervisor's office and a prosecutor's office. There is room for expansion within the footprint as it is today.

The department is using Information Management Corporation (IMC) computerized software widely used in New Hampshire police departments for documenting, storing, and reporting criminal and motor vehicle data based statistics for the town.

Staff

The department consists of six full-time officers (chief, lieutenant, and four patrol officers), the fourth officer was added in December 2005 as part of a grant with Holderness Private School. The officer spends his time at the school during the school year and is a full-time police officer during the summer months for the police department. This takes care of the need for an additional full-time police officer right now. Part-time staff consists of two part-time officers, and a part-time administrative secretary. The secretary is available Monday-Thursday between 8:00 am and 2:00 pm. There is an on-duty officer starting at 8:00 am. until 2:00 am Sunday through Wednesday and 8:00 am until 3:00 am on Thursday through Saturday. For the uncovered hours there is an on-call officer available.

Equipment

The department has four cruisers. A 2000, 2004, and 2005 Ford Crown Victoria and a 2003 Ford Expedition. The 2000 Crown Victoria is primarily used as a detail vehicle to reduce the wear and tear on the duty vehicles and a vehicle is used for officers that take calls from home in the off hours.

Areas of Deficiency

- The Police Department space is at full capacity and will need to be addressed.
- There is no enclosure, such as a sally port, for safe transfer of a prisoner/arrestee from the cruiser to the booking room and vice versa. This also prohibits the Police Department from having cruisers out of the weather in the winter months. An enclosure would also be a safer place to secure our cruisers that have weapons, laptops, and other expensive equipment installed in them.
- There are a number of sites in Holderness where the officers cannot transmit from cruiser radios and in most of the town, the portable radios can not transmit or receive information from the dispatch center in Plymouth. This is a serious officer/public safety issue that will not be corrected by the new digital radio system implemented by the state of New Hampshire.

Recommendations

- A study needs to be done on the feasibility of adding a sally port onto the rear of the Police Department
- Radio coverage needs to be improved. This could be accomplished by the construction of a tower with a repeater or use the town of Ashland's tower and repeater system (this is a common need for Police and Highway Departments).

7. Holderness Library

Facility

The Holderness Library is free to Holderness residents. There is a nominal annual fee for non-residents. It is located at 886 US Route 3 at the intersection of Route 3 and 113, in the village center. The library was built in 1909, with an addition built in 1987. The one-story brick building consists of a main floor with one large room (950 square feet) which houses the circulation desk, catalog computer for patron use, stacks containing adult fiction, non-fiction, periodicals, young adult fiction, non-fiction and vertical files. The main room provides a table and chairs for work and reading, plus exhibit areas. The children's room is through the open doorway at the back of the main room (400 square foot addition). This room houses a collection of board and picture books, early reading books, juvenile fiction, non-fiction plus periodicals for young people. This room also contains the director's work area, patron computers, and bathroom facilities.

The basement has a total of 1,120 square feet, with the larger room (720 square feet) used to house books on audio cassettes and CD, plus DVD and VHS video collections for children, teens, and adults. The smaller, additional room (400 square feet) is used for programs, crafts, quiet reading, and the Friends of the Library's book sale. The remainder of the basement contains a small storage area beyond which is the furnace room.

Level of Service

A comparative determination of the level of activity for the library can be measured by the number of volumes and items of material circulated on an annual basis. Table VI – 3 shows the total number of volumes and other circulated materials between 1999 and 2004.

Table IV – 3: Total Volumes Owned and Total Items Circulated 1999-2004

Year	Volumes Owned	Items Circulated
1999	17,029	7,620
2000	17,279	7,774
2001	17,640	9,568
2002	16,136	10,353
2003	15,829	10,899
2004	16,462	10,036

Source: Holderness Library

The total items circulated include books, audio cassettes, CDs, VHS, DVDs and periodicals.

The fluctuation reflected between the years 2002 and 2003 is the result of weeding materials that were out dated and volumes that were too old and fragile to continue circulating.

The year round population of Holderness is under 2,000. According to standards for small public libraries, the Director feels that the number of volumes owned and the quality of materials is equal to those of similar size and budget.

The operating hours for the library are:

Mondays and Wednesdays	10:00 am - 6:00 pm
Fridays	10:00 am - 5:00 pm
Saturdays	<u>10:00 am - 1:00 pm</u>
	Total of 26 hours per week

These hours are considered sufficient to meet the current needs and are more than other libraries of this size. The patronage includes both residents and non-residents (approximately 1,542 families). Use more than doubles during summer months.

The library is integrated with the State Library System that allows us to borrow materials for our patrons from libraries throughout the state. This program is beneficial from many points. One is that each library need not own every book patrons wish to borrow.

The library sponsors several programs for both children and adults. These include story hours for children with special programming by professional entertainers. The library also sponsors adult programs that have included meeting authors, storytelling, and craft projects. The library is interested in expanding its programs for people of all ages and interests.

The library has an excellent working relationship with the community, especially through the Friends of the Library, which consists of approximately 200 members. The Friends, the Library Trustees, and volunteers assist the Library Director with many tasks to provide a vibrant circulating library to Holderness residents and guests.

Staff

The staff consists of one full-time Library Director and a part-time Library Assistant.

Areas of Deficiency

- The library remains in non-compliance with the Americans with Disabilities Act. Non-compliance prohibits the library from qualifying for state and federal grants.
- The heating system is in need of replacement and additional insulation is needed. The minimal insulation affects the costs of providing heat and cooling the building.
- The library lacks computer space that affords privacy for patrons. The library provides free internet access to its patrons and guests. Patrons' demand for this access continues to grow at an exponential rate. This access demand includes requests for wireless access.
- The library has inadequate bathroom facilities. To be in compliance with the ADA, the library would like to install a handicap-accessible bathroom.

Recommendations

The library has undertaken a fundraising campaign to address the following deficiencies by the year 2010, the 100th anniversary of the library.

- Continue to develop a long-range plan for the use of the facility and the expansion of the collection.
- Continue to work toward compliance with the ADA as well as a resolution of space limitations and air quality within the building.
- Work on landscape design and installation.
- Increase programming to meet the interests expressed by the community.

8. The Schools

The K-8 elementary school, with a population of 218 pupils, is staffed by a professional staff of 35 and a support staff of 15. Students are organized into three pods: K-2, 3-5 and 6-8. Kindergarten is an extended four-hour session with a 1 ½ hour overlap between the morning and afternoon sessions. Holderness Central School is a Community of Caring School. Parent volunteers and community support are outstanding. It has been the recipient of the state's Blue Ribbon Award for Volunteerism for the past three years. The comprehensive educational program includes the basic discipline areas of mathematics, language arts, social studies, and science. In addition, physical education, music, computer technology, art, life studies, and industrial arts are offered. The early grades

stress an integrated instructional program. At the upper level, the emphasis is on creating a multi-disciplinary middle school environment. Comprehensive social education and guidance services are available. Enrichment is an on-going process within the school. A community commitment to a low student to teacher ratio ensures individualized attention and helps students be successful. Activities such as concerts, performances, artists-in-residence, student shows, academic fair, field day, winter activities and “Literacy Week” are offered. Interscholastic athletics are available for grades 5-8. Chorus and band are also offered as electives. Summer school is offered. The school is currently working with the Best Schools Initiative in the areas of literacy, math, and facility, and community involvement. In 2004-05, the school was named a finalist for a School of Excellence award.

Facilities

Holderness Central School

The town of Holderness is a member of School Administration Unit #48 along with towns of Ashland (high school students only), Campton, Plymouth, Rumney, Thornton, Wentworth, and Waterville Valley School.

The centrally located one story brick building, built in 1952 and expanded in 1968, 1987, and 1994 is situated on 11.8 acres. Located adjacent to a flood plain, it contains two classrooms below ground that have infrequent ground water drainage problems.

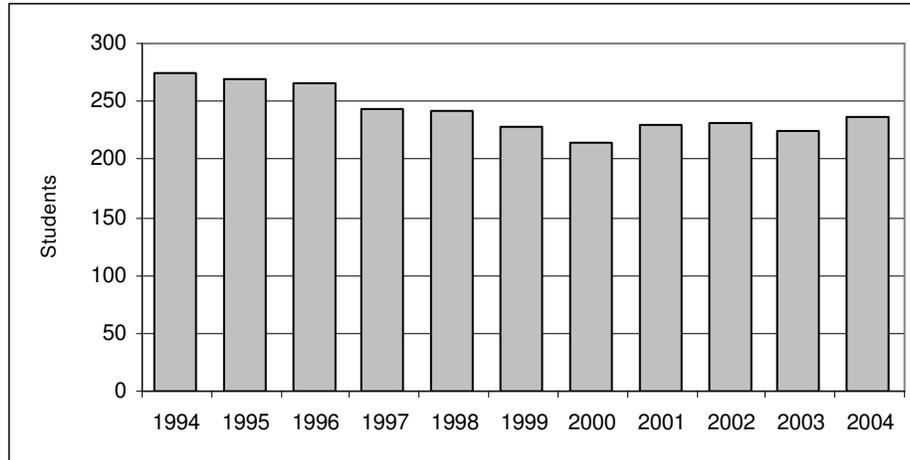
The school houses 18 classrooms, 7 undersized rooms used by specialists and small groups, plus core facilities of gymnasium, cafeteria, kitchen, and library/computer lab space. In some cases, classrooms are undersized. The library space located in a storage room is inadequate. The septic system meets needs with a 286-person capacity. The fields comprise 4.4 acres. There are parking spaces for 50 cars. The capacity of the building is 260. The enrollment as of October 2005 is 218. Enrollment for the years 1994-2004 are illustrated in Graph 1.

Plymouth Regional High School

Holderness sent 112 students to Plymouth Regional High School as of October 2005. The participating towns that tuition its students to Plymouth Regional High School include Ashland, Campton, Plymouth, Rumney, Thornton, Wentworth and Waterville Valley. The towns pay their share by a formula based 50% on equalized evaluation of each town and 50% on average daily enrollment of students. Holderness pays about 21% of the school budget.

The high school was built in 1970 and renovated in 1990. An addition was added in 2000. It had an enrollment of 600 for 1993-1994. The enrollment in the fall of 2005 was 897.

Graph IV - 1: Holderness Central School Enrollment 1994-2004



Source: Holderness Central School

Staff

Holderness Central School

The School Board is comprised of five persons elected by the residents. The Board hires the school staff. For the 2004-05 year, there is a total staff of 50 people, including one principal. Full time staff of 35 includes 16 classroom teachers, three resource room teachers, seven special education aides, a playground supervisor, two general education aids, a nurse, a library/media generalist, a speech and language specialist, an office manager, a custodian, and a food service director. A part-time staff includes four teachers, a guidance counselor, a resource room teacher, an occupational therapist, a school psychologist, two reading support specialists, a math tutor, a recess aide, two food service assistance, and two custodians.

Plymouth Regional High School

Holderness is represented by three members on the thirteen member Pemi-Baker Regional School Board. This Board is responsible for the hiring principals, two assistant principals/vocational director, special education director, 64 teachers, three guidance counselors, librarian, nurse, 21 aides/teaching assistants, 6 clerical staff, five custodians, and a hot lunch director. The part-time employees include 9 teachers.

Superintendent's Office

This office has a full-time staff of a superintendent, two assistant superintendents, a special education director, an accountant, three bookkeepers, four secretaries. The share that Holderness pays for this office is based on a similar formula to the one used for the high school, with the average daily enrollment including those in both schools.

Areas of Deficiency

Holderness Central School

- The roof is over 20 years old. It leaks and will need replacement.
- Several doors, windows, and locks need replacement.
- Drainage in the basement rooms has been addressed through the use of sump pumps; however, the seepage of moisture is less than ideal.
- Parking for special events, such as school functions and town meetings, continues to be a deficiency of the site.
- The annex building needs a plan for future usage or removal.
- The HVAC system needs replacement.
- Bathrooms need renovation.
- Flooring needs replacement.
- The entry needs to be changed for security purposes.

Plymouth Regional High School

- The condition of the parking lot areas needs to be addressed.
- There is no track at the high school.
- Need for more athletic space.

Recommendations

Holderness Central School

- Address deficiencies as determined by the Holderness School Board

Plymouth Regional High School

- Address deficiencies as stated by the Pemi-Baker School Board

Vision for the Future

Holderness Central School is working to improve its facilities and academic programs to maximize the potential and increase the achievement of every student. The vision is to continuously improve and update the curriculum, extra-curricular programs, and facility to provide every student with the education needed to succeed in an increasingly complex society. This includes working with the latest technology, tools and resources, implementing research based best practices, tying academics into practical skills and applications, and utilizing community resources and involvement. The faculty is engaged in curriculum mapping and math and literacy initiatives. Students' education needs to expand well beyond the four walls of Holderness Central School, and community support and involvement is the key. In order for every student to be successful, this may also include extended after school and summer programming.

9. Recreation

Several appointed groups within the town have jurisdiction over some recreational aspects of Holderness. A Recreation Board of five people and a part-time Recreation Director coordinate and promote recreational opportunities for town residents and the public. The Recreation Board, listed in the Town Reports of the past as the Park Board, oversees the beach. The Conservation Commission manages the land that was bought with Land Conservation Investment Program funds.

Public Facilities

The Town Beach

Livermore Beach is the single most utilized town recreational facility. The beach is located on NH Route 113 and consists of approximately 7.75 acres with 250 feet of Squam Lake frontage. The property is restricted by deed. Facilities at this site include a parking area, bathhouse, a small storage building used for changing rooms, a small playground with swings and a sandbox, picnic tables, refuse containers and portable toilet units. The beach is open to Holderness residents and taxpayers and their guests with the purchase of a beach pass, the proceeds of which go to support upkeep of the facility. The beach may be used for the sole purpose of bathing and related recreational and playground use. Boating, fishing, water skiing, and any commercial uses are excluded.

The beach is managed by the Recreation Board and Recreation Director, which oversee rules and regulations and hiring of personnel. The Committee reports to the Board of Selectmen. A Beach Attendant/Manager is on duty

during the period from mid June until Labor Day. Upkeep of the grounds and buildings is done by the attendant during the summer months and by the town and volunteers during the off-season.

Recent work on the parking lot has improved some parking problems. Signage has been increased, handicapped parking has been added and two portable toilets, one of which is handicapped accessible, have been installed. There is also a phone for emergency use on the site from mid June until Labor Day.

The Central School

The Holderness Central School, located on NH Route 175, has a playground, tennis courts, and athletic fields built by volunteers from the school and community. It is open to the public during non-school hours and is geared for school age children. There are swings, slides and climbing apparatus. The school is presently expanding the use of the facility by increasing evening activities and after-school programs.

The Recreation Board runs a summer day camp program at the school that includes activities at the beach, town trails, or the library.

Other Facilities

1. Undeveloped Town-Owned Land - Other facilities which provide recreational opportunities to Holderness residents include a 50-acre town forest located on Beede Road. The property has several old logging roads which can be used for hiking in the summer and cross-country skiing in the winter. The forest is open to the public, although it is rarely used. Lack of familiarity with its location may be a reason for its limited use. The Conservation Commission acquired two additional properties in 1991, a 105 acre plot diagonally across Beede Road from the town forest and a 2.7 acre lot on South River Street on the Pemigewasset River. Both properties show some potential for recreational activity. Although the primary goal of the properties is to act as natural preserves, limited recreational usage is still within the range of their use.

2. Trails

- 50 miles along the Squam Range maintained by Squam Lakes Association (SLA),
- Three miles on the Squam Lakes Natural Science Center facility

The Armstrong Natural Area located on West Rattlesnake. This 50-acre area is owned by the University of New Hampshire and provides a trail system maintained by the (SLA) for use by the general public. There is a small parking lot diagonally across the street from the trailhead.

- Maintained snowmobile trails connecting to surrounding areas that are also used by cross-country skiers and bikers.

3. Campsites - The SLA also manages and maintains campsites and small beaches on Moon and Bowman Islands on Squam Lake.

4. Access to the Lakes and Pond - There is a public launch site available on the Squam Channel on NH Route 113. Additional access to Squam and other water bodies should be explored further.

5. Other Opportunities - The Holderness School Lower Athletic Fields on NH Route 175A provides opportunities for Holderness youth soccer and baseball, and cross-country ski trails for Bill Koch Ski Leagues and community ski racing events. Requests for use should be coordinated through the Athletic Director's Office. Cultural events such as concerts, plays, recitals, dance performances and guest lectures are also offered by the school and open to the public.

There are many recreational opportunities in the town of Holderness provided by private and commercial establishments. Participation requires membership or a fee. These include campgrounds, marinas, a golf course, lake tours, tennis courts, the Squam Lakes Natural Science Center, Pemi Fish and Game Club, Scouts, Home Extension Group, Elks Club, and the Mt. Livermore Grange, among others. There is an active snowmobile club that operates and maintains a complex of three main trails and numerous lesser trails. There are also many seasonal events throughout the year open to the public. These include but are not limited to the Jux Road Rally in the autumn, the Coxboro Tennis Tournament in August and the Trailbusters Snowmobile Ice Drags on Squam Lake in January.

Plymouth State College offers a number of recreational opportunities usually for a fee including use of the college pool, planetarium, educational courses and cultural events.

D and M Park adjacent to the PSU field house is owned and operated by the Plymouth Athletic Club. This organization oversees the park and schedules the use of its two ball fields.

Staff

The part-time employees are a Recreation Director, beach attendants, camp counselors and other various program instructors.

Areas of Deficiency

Holderness continues to have limited but improving recreational facilities. Some of the needs for recreation in Holderness are:

Town Beach

- Entrance/exit onto NH Route 113 is troublesome for two-way traffic.
- Drainage ditch has backed up creating wetlands on lawn area.

Lake Access

- No shoreline non-resident (public) swimming facility or parking area.

Other

- There is need for a park, trails for walking and biking, trails designated for biking on roads, and playground equipment for small children.
- The Recreation Director has an office located in town hall, but equipment is stored in three locations.

Recommendations

- Develop a town-wide multi-modal trail system.
- Provide additional public access to the town's lakes, ponds, rivers and forests.
- Cooperate regionally to meet recreational needs of the Squam Lakes area.
- Develop a long-range plan to address deficiencies of the town beach.
- Find land for shoreline conservation purposes that would be compatible with low impact recreational use, such as picnicking, swimming, walking, etc.
- Improve usability of school properties for community recreational use.

Chapter V: Natural Resources

Holderness lies in a diverse area of the Lakes Region with many important natural resources available to the town and its residents. In order to maintain the quality of life in Holderness there needs to be a more complete understanding and recognition of what resources exist and how the town of Holderness can participate in the future management and preservation of these resources.

The following issues identified by the Planning Board and the Conservation Commission address the conservation, preservation and natural resource concerns of Holderness:

- Protect local aquifers
- Extend of the Shoreland Protection Act to the tributaries
- Protect the upper reaches of the watershed and Squam Lake
- Support alternative modes of transportation within Holderness
- Preserve wetlands and prevent the fragmentation of the landscape in order to preserve wildlife habitat
- Maintain the stratified drift aquifers

Keeping these issues in mind, this chapter will address the current status of natural resources within Holderness and serve as a guide for future preservation and implementation steps.

1. Inventory of Natural Resources

Scenic Resources

Holderness has a wide array of natural resources available to the community in the form of preserved land, trails, scenic roads, and views capes. Scenic roads such as NH Route 113, South Coxboro, and East Holderness offer views of farmlands, woodlands, mountains, or lakes which contribute to the rural beauty of Holderness and are enjoyed and appreciated by residents and visitors alike. The views of and from the Squam Range are majestic and the shoreline of Squam Lake provides quiet enjoyment of the surrounding natural beauty. An inventory of these specific areas was compiled for the 1994 master plan and can be found at the end of this document (pages 16-19).

Topography

The town of Holderness contains 30.5 square miles of land area (85% of town) and 5.4 square miles of inland water area (15% of town).¹ The Pemigewasset River forms the northwestern border between Plymouth and Holderness and provides a small amount of flood-basin land on the eastern shore. Holderness is dominated by mountains and hills with Mt. Prospect and The Button rising in the northern part of town and the Rattlesnake Mountains, Mt. Webster, Mt. Livermore, and Cotton Mountain in the Squam Range cutting across town from east to west. The Squam Range hugs the shoreline of Squam Lake with Carr Brook and Owl Brook flowing on the northern side of the range into Ashland, and eventually into the Squam River. On the southern shore of Squam Lake sits Shepard Hill, which is surrounded by Little Squam Lake to the west and White Oak Pond with several large wetland areas to the east. Groton, Sheep, Moon, and Bowman Islands and part of Great Island are all within Holderness. The islands are minimally developed, providing secluded habitat for plant and animal species. The Squam Lake Association (SLA) owns and manages public recreational space on Bowman and Moon Islands.

Slope

The slope of an area is measured by dividing the vertical height by the horizontal length or the rise over the run. For planning purposes, slope percentages are often used to determine where development should not occur due to the steepness of the building site. Slopes are usually considered steep, and not developable, once they reach 25% or higher gradient.² However, several area communities have a steep slope limit of 15%. Slope percentages can also be used to identify areas of significant wildlife habitat, for example, steep south-facing slopes provide important habitat for many plant and animal species.

The land available for development within Holderness is limited due to the steep topography as shown in the Town of Holderness Constraints Map (Page 13). The valley between Mt. Prospect and the Pemigewasset River, the valley between Mt. Prospect and the Squam Range, along the shoreline, and the area surrounding White Oak Pond are the most level areas of town. The southern slopes of the Squam Range and Mt. Prospect have several steep areas which are significant habitat for local wildlife. South-facing steep slopes provide rocky habitat for species that depend on receiving full sunlight during the day and are important to maintain species diversity. These areas are not readily developable and therefore are somewhat protected from disturbance, but without permanent protection the habitats are vulnerable to development.

¹ Holderness NH Community Profile.

<http://www.nhes.state.nh.us/elmi/htmlprofiles/holderness.html> Accessed 2/4/2005.

² New Hampshire Association of Conservation Commissions. *Handbook for New Hampshire's Municipal Conservation Commissions*. August 2004.

Soils

The most dominant soil type within Holderness is Tunbridge-Lyman-Rock outcrop complex which has a 25-60% slope. The other predominant soils are rocky and often steep, such as Becket fine sandy loam (15-25% slope, very stony) and Monadnock and Hermon soils (15-25% slope).³ These soils are not particularly rich in organic materials and therefore not well suited for growing crops, but the absence of clay in the area allows for better drainage and is acceptable for development.

Soil types can help communities determine land uses, identify where to focus conservation efforts, and locate wildlife habitat. For example, when poorly drained soils are mapped, potential wetland areas are usually identified. When well-drained soils are found, they are often associated with suitability for agriculture, which is also favorable to development and can compete with local preservation efforts. Rockier soils are generally found on steeper slopes, which are prevalent in New Hampshire due to their glacial or glaciofluvial origins.

Farmland Soils

Soils are classified relative to their use as farmland in an effort to help preserve rich soils from development. Holderness has 3,908 acres of locally important farmland soils, which does not necessarily mean that the land has been or is currently being farmed. Holderness does not have any farmland soil acreage of statewide importance.

Soils which are considered to be of local importance within Grafton County must meet the following qualifications:

- Soils that are poorly drained, have artificial drainage established, and are being farmed
- Specific soil map units identified from the Natural Resources Conservation Service (NRCS) county soil survey legend, as determined by the Conservation District Board
- All land that is in active farm use⁴

On the floodplain of the Pemigewasset River in the northwestern corner of town is where the richest soils are found. This is due to river flooding which deposits sediments on the river banks and the floodplain, enriching the existing soil. Other areas with sizable amounts of significant farmland soils are on the west side of Mt. Prospect, where there is also some development activity. Surrounding White Oak Pond is a scattering of locally

³ Natural Resources Conservation Service. *Soil Data Map: New Hampshire, Grafton County*. <http://soildatamart.nrcs.usda.gov/Report.aspx?Survey=NH009&UseState=NH> Accessed 2/7/2005.

⁴ Natural Resources Conservation Service. *New Hampshire Soil Attribute Data Dictionary*. http://www.nh.nrcs.usda.gov/Soil_Data/soil_data_documents/datadict.pdf Accessed 2/17/2005.

significant farmland with the wetland areas. Important farmlands and wetland are displayed on the Town of Holderness Natural and Preserved Areas Map, page 14.

Wetlands (Hydric Soils)

Wetlands provide important habitat for many species and are some of the most diverse ecosystems which exist. Holderness has many small wetlands surrounding White Oak Pond and Squam Lake, which play an important role in the habitat of the immediate area as well as mitigating floods during heavy rains or spring thaws.

Holderness has approximately 1,600 acres of wetland soils which are either poorly drained or very-poorly drained. Wetland areas are near White Oak Pond, on the northern border of town south of Perch Pond, and near Carr Brook and Owl Brook towards the geographic center of town.

Holderness has designated its prime wetlands according to the requirements of RSA 482-A:15 and through the NH Department of Environmental Services (NH DES) Wetlands Bureau. Once the wetlands are evaluated and designated by the municipality, DES reviews the submission and, upon approval, will consider any future projects that are in or adjacent to prime wetlands as major projects which require a field inspection and a public hearing⁵.

Vernal Pools

Identification of local vernal pools is an important aspect of understanding the complexity of local ecosystems. Vernal pools are a type of wetland, holding water during the spring and dry during the summer. Vernal pools do not support fish populations, but they provide essential breeding habitat for amphibian species such as wood frogs, fairy shrimp, and mole salamanders. They are often mistaken for insignificant puddles and therefore easily destroyed through disturbance from passers-bys. Vernal pools are small and generally less than 0.1 acres and usually do not break the forest canopy.⁶

Currently, Holderness has not specifically mapped any local vernal pools, but a bioinventory study performed by the Squam Lakes Association in 2001 and 2002 found abundant and significant vernal pools in the watershed. The Conservation Commission is aware of several vernal pool locations, one site is off of Mt. Prospect Road near the Holderness School, and the other site is located on the Pilote Forest property.

Water Resources

Surface Water

Surface water plays a significant role in the character of Holderness, with Squam Lake dominating the southern and eastern sections of town. Half of Little Squam Lake is

⁵ NH Department of Environmental Services Wetlands Bureau. *Guidebook for Wetlands Permits*. <http://www.des.state.nh.us/wetlands/guidebook/primewet.htm> Accessed 3/17/2005

⁶ Sperduto, Daniel D. and William F. Nichols. *Natural Communities of New Hampshire*. <http://www.nhdf.org/formgt/nhiweb/Documents/NaturalCommunitiesWeb.pdf> Accessed 3/2/2005

within the town boundaries, along with White Oak Pond to the south of Squam Lake, Carr Brook, Owl Brook, and West Brook (see page 14). Many people, both residents and visitors, make a direct association between the town, Squam Lake, and the shoreline. This association directly impacts Holderness as many people visit or have second homes in town due to the beauty and recreational opportunities the lakes have to offer. The health and well-being of the Squam Lakes and the associated waterways is directly related to the economic well-being and quality of life in town. There are several organizations working on the issues which threaten Squam Lake and preserving the natural habitat of the area.

All the waterways in New Hampshire suffer from mercury contamination due to air pollution entering the waterways by affixing to rain. Thus, all waterways in New Hampshire are classified as “Impaired” by NH DES. While Squam Lake has no restrictions on primary or secondary contact with the water, there may be the potential for *Escherichia coli* contamination in Little Squam Lake. These issues affecting the surface water are part of a regional problem, and the effects on the local waterways are being monitored by local organizations.

Watersheds

Holderness falls within three sub watersheds all of which are contained in the larger Merrimack River Watershed. The majority of Holderness is within the Squam River Watershed, the northwest and northern parts of town are in the Middle Pemigewasset Watershed, and the southwestern tip of town is in the Lake Winnepesaukee Drainage Watershed. Watersheds are displayed on the Town of Holderness Natural Resource Co-occurrence Map, page 15.

Groundwater

Stratified drift aquifers are made up of a layer of bedrock as the base and layers of porous materials such as sand or gravel. Ground water seeps through the layers of soil, sand, and gravel, which filter impurities out of the water, until it reaches the impermeable bedrock foundation. The layer of water which flows above the bedrock but within the porous layer is the aquifer.

Holderness has two main areas which overlay a stratified drift aquifer: one area is in the northwest section of town, east of the Pemigewasset River, and the other area which surrounds the joining of Carr and Owl Brooks. There is also a small section of drift aquifer north of East Holderness Road and south of White Oak Pond. Although the aquifers within Holderness do not currently supply the town with drinking water, it would be beneficial to protect them for future municipal use. One area of concern is in the northwest section of town where Plymouth’s well-head protection area extends into Holderness. The northwest/Pemi aquifer is used as a water supply source for the town of Plymouth and there is a small section of west Holderness that is fed from this supply.

Contamination of a stratified drift aquifer supply can be difficult to remedy due to the multiple layers of soils and rock. The layers have varying levels of density and porosity

and can trap contaminants, making extraction either technically or economically unfeasible. The aquifer is not stagnant, which also contributes to the difficulty in cleaning up a contaminate. Newly contaminated water continues to flow with the clean water, thereby further spreading the contamination. Non-point pollution, such as run-off from nearby roads, is a significant source of contamination and is difficult to remedy not only due to the movement of the aquifer but to the widespread pollution source.

There are several sites within Holderness which may be of concern in the future as potential contamination sites. Uncovered salt piles and the use of road salt during the winter are of concern as the ice melts and carries the salt into the water system. Gas stations, old town dumps, industrial lands, junkyards, and mechanic garages are all examples of potential contamination sites for both soil and ground water contamination. While a site may not currently be of concern, identifying the potential of a site can be helpful for any unexpected future occurrences. For example, an existing gas station may not have any current leaks but may be the subject of prior or future leaks.

The Conservation Commission had discussed several potential contamination sites but only one seemed to be of concern. The potential use of lead shells and shot which may contaminate water supplies on two abutting shooting ranges, one owned by the Pemigewasset Valley Fish and Game Club and the other, Owl Brook Hunter Education Center, owned by New Hampshire Fish and Game Department. Currently, there are no regulations prohibiting the use of lead shells or shot, only recommendations from the Environmental Protection Agency (EPA) for best management practices. Both ranges have monitoring wells which tested negative for lead contamination. Regular water quality monitoring is important in catching any contamination early on and communication between the shooting ranges and the town is essential.

Significant Habitat & Potential Threats

Holderness contains significant areas of high quality habitat due to the varying topography, the presence of Squam Lake, and the large areas of undeveloped land. The combination of these qualities, along with conservation land, allows for plant and animal species to co-exist within an ecosystem which may be vital to the existence of neighboring natural communities. Identifying these habitats and species is necessary to understand the diversity of the area, and should be considered when determining where to focus conservation efforts.

Potential threats to significant habitat areas and to significant species are often related to human disturbance. Development of undisturbed land will not only disrupt the immediate habitat, but can also affect the surrounding natural communities by the creation of noise, change in sunlight exposure, increased erosion, habitat fragmentation, alteration of migration paths, and proximity to food and shelter for animal species. New roads fragment land, which may be essential to a species' habitat requirements as well as introducing contaminants from automobile travel and road maintenance. Unfragmented lands are displayed on page 14.

Tables V-1 and V-2 list documented habitats and communities in Holderness. The Conservation Commission has also identified the manmade ponds located on NH Route 175A as significant habitat for migratory bird species as well as recreational space. The Conservation Commission also noted that there may be cherry trees in Riverside Park which would be another significant habitat to maintain.

Table V-1: Significant Habitats in Holderness

Habitat	Description
Appalachian Oak	Mountain laurel forest, on the margins of Squam Lake
Red Oak – ironwood	Pennsylvania sedge woodland, found on the Rattlesnakes
Dwarf cherry river channel	Livermore Falls
Herbaceous sandy river channel	Livermore Falls
Twister sedge low riverbank	Livermore Falls
Alluvial mixed shrub thicket	Livermore Falls
Acidic riverbank outcrop	Livermore Falls

Source: Spurduto, Daniel and William Nichols. *Natural Communities of New Hampshire*. New Hampshire Natural Heritage Bureau and the Nature Conservancy 2004.

Table V-2: Rare and Endangered Species in Holderness Reported in the Last 20 Years

Flag	Name	Listed Federal	Listed State	# Reported in town	# Reported in NH
	NATURAL COMMUNITIES – Terrestrial				
***	SNE circumneutral rocky summit/rock outcrop community	-	-	1	6
***	SNE circumneutral talus forest/woodland	-	-	1	13
	NATURAL COMMUNITIES - Palustrine				
**	Inland New England acidic pond shore/lake shore community	-	-	1	13
**	SNE basin swamp	-	-	1	10
	PLANTS				
*	Douglas' Knotweed (<i>Polygonum douglasii</i>)	-	T	1	11
**	Fern-leaved Foxglove (<i>Aureolaria pedicularia</i> var. <i>intercedens</i>)	-	E	1	9
	Hound's-tongue (<i>Cynoglossum boreale</i>)	-	E	H	6
	Loesel's Twayblade (<i>Liparis loeselii</i>)	-	T	H	25
**	Missouri Rock-cress (<i>Arabis missouriensis</i>)	-	T	1	10
	Purple Crowberry (<i>Empetrum atropurpureum</i>)	-	T	H	34
***	Rock Sandwort (<i>Minuartia stricta</i>)	-	E	1	3
	Small Whorled Pogonia (<i>Isotria medeoloides</i>)	T	E	H	48
	Small-flowered Hemicarpha (<i>Hemicarpha micrantha</i>)	-	-	H	3
	Stiff Gentian (<i>Gentiana quinquefolia</i>)	-	-	H	6
****	Three-birds Orchid (<i>Triphora trianthophora</i>)	-	T	1	22
	Three-seeded Mercury (<i>Acalypha virginica</i>)	-	T	H	5
	BIRDS				
**	Common Loon (<i>Gavia immer</i>)	-	T	6	153
**	Great Blue Heron (Rookery) (<i>Ardea herodias</i>)	-	-	1	37
	REPTILES				
**	Blanding's Turtle (<i>Emydoidea blandingii</i>)	-	-	1	79
**	Wood Turtle (<i>Glyptemys insculpta</i>)	-	-	1	65
	FISH				
	Lake Whitefish (<i>Coregonus clupeaformis</i>)	-	-	H	8

E = Endangered T = Threatened H = Historical (populations may still survive but none have been reported in the last 20 years) The Flag column is based on a combination of (1) how rare the species or community is and (2) how large or healthy its examples are in that town.

**** = Highest importance *** = Extremely high importance ** = Very high importance * = High importance

Source: New Hampshire Natural Heritage Bureau. *Rare Plants, Rare Animals, and Exemplary Natural Communities in New Hampshire Towns*. July 2004.

Co-Occurrence Map

Co-occurrence mapping (see page 15) was completed for the Squam Lakes Watershed Study and distributed during the summer of 2004 to towns abutting Squam Lake. The map presents an example of how to use available data for mapping and visually representing areas of ecological importance. The map shown displays a ranking system for areas surrounding the lake using a variety of variables such as wetlands, fish spawning areas, significant farmland soils, and drinking water protection areas to name a few. Each positive attribute was given one point so that when several attributes occurred in one area, that space was given a ranking based on the points accrued. These areas were then shaded with the darkest areas being the most valuable. This ranking system can be changed so that the value system reflects local priorities.

Conservation and Public Lands

Conserved land in rural areas can help preserve wildlife habitat, protect drinking water, and contribute to maintaining the character of a community. Agricultural, public, and unfragmented lands also contribute to the wildlife and human communities but are not necessarily under permanent protection and have the potential to be developed.

Agricultural Resources

Agricultural lands are important for communities as sustaining a rural image, creating a diverse economic base, providing potential habitat lands for birds of prey and serving as corridor lands for species migration. Holderness has 161 parcels of agricultural lands, totaling approximately 742 acres, with the majority of these lands seven acres or less per parcel. The agricultural lands are clustered near the Pemigewasset River and north of the Rattlesnake Mountains. Due to the challenging topography, agricultural practices which require flat land for planting and harvesting can make certain types of farming in Holderness difficult.

Conservation Lands

There are 47 parcels of permanently conserved land in Holderness, totaling 1,649 acres with the largest single parcel being 275.5 acres. These conservation lands are not concentrated in one particular area but rather they are scattered throughout the town, some of which extend across town lines into Ashland and Sandwich.

Fish and Wildlife Resources

The NH Fish and Game Department owns the 500 acre Owl Brook Hunter Education Center which is located off Perch Pond Road. It is managed under the department's Hunter Education Program and is open to the public.⁷

⁷ New Hampshire Fish and Game Department.
http://www.wildlife.state.nh.us/Hunting/hunter_ed_center.htm Accessed 2/4/2005.

Forest Resources

There are several parcels of land which have been donated and preserved as forest lands, two sites are registered with the New England Forestry Foundation, one 55 acre parcel and one 177 acre parcel.⁸ Holderness is also a member of the New Hampshire Timberland Owners Association which promotes healthy management of forests and the American Tree Farm System which promotes the balance of recreation, forestry, and habitat. There is also the town forest of 52 acres on Beede Road.⁹ Much of Holderness is covered by forest lands which are not protected by any permanent conservation easements.

In 2002 a stewardship management plan was conducted for the Pilote Forest Tract. The plan includes a detailed description of the various types of tree stands found on the property along with a soils inventory, discussion on non-forested areas, and recommended treatments.

Unfragmented Land

Unfragmented land parcels which are over 100 acres provide protected habitat for a wide variety of species and allows for feeding, breeding, and nesting to occur in areas far removed from development. This land classification includes agricultural lands, woodlands, wetlands, water bodies, and rivers or streams less than ¼ mile wide. Land within 300 feet of a roadside is not considered to be part of an unfragmented parcel nor are rivers greater than ¼ mile wide and lakes with developed shorelines. Holderness has several significant tracts of unfragmented land; the largest parcel contains the Squam Range in Holderness and extends into Campton and Sandwich.

Table V - 3: Unfragmented Land Including Areas Which Cross Town Boundaries

Range of Acres	Number of Unfragmented Areas	Total Amount of Acres
.1 – 10	89	113.8
10.1 – 50	10	216
50.1 – 100	4	303.4
100.1 – 250	5	824.3
250.1 – 500	3	1,058.10
500.1 – 1000	4	4,132.50
1000.1 +	4	23,609.60

2. Local and Statewide Resources

The state of New Hampshire and the Holderness area have many organizations which are involved in natural resources issues. These groups conduct research, facilitate recreation opportunities, educate the public, work on land preservation, and monitor resources. The

⁸ New England Forestry Foundation.

<http://www.newenglandforestry.org/forestry/nhforestssummary.asp> Accessed 2/4/2005.

⁹ Holderness Master Plan, 1994.

following list is not meant to be exclusive, but gives an example of the many resources available to the residents of Holderness.

Lakes Region Conservation Trust

P.O. Box 1097
Meredith, NH 1097
(603) 279-3246
Fax (603) 279-7278
<http://www.lrct.org/>

The Lakes Region Conservation Trust is a member-supported, community-based, non-profit organization. The Trust unites private philanthropy with voluntary community service to protect key conservation properties and to endow their stewardship in perpetuity. Since 1995, the Trust has protected more than 13,000 acres of conservation land, bringing its total protected properties to 15,000 acres, including more than 8 miles of protected shore frontage on the region's lakes and ponds.

Owl Brook Hunter Education Center

387 Perch Pond Road
Holderness, NH 03245
(603) 536-1290
http://www.wildlife.state.nh.us/Hunting/hunter_ed_center.htm

The mission of the center is to educate individuals in the knowledge, skills, and behaviors needed to become safe and responsible hunters, trappers and stewards of the state's natural resources. When the facility is complete, the center will host workshops, special events and talks conducted by Fish and Game staff, hunter education and center volunteers, and in partnership with non-governmental organizations, such as the NH. Trapper Association and the National Wild Turkey Federation. They will present avenues for individuals and families to start the lifelong journey of becoming safe and responsible hunters and trappers. As much as possible, the "hands-on" and "learn by participation" approach is used.

Society for the Protection of New Hampshire's Forests

54 Portsmouth Street
Concord, New Hampshire 03301
Phone: 603-224-9945
Fax: 603-228-0423
<http://www.spnhf.org/landconservation/>

Protecting New Hampshire's landscapes has been the driving force behind the Forest Society since it began in 1901. Their land conservation ethic is deeply rooted in protecting the state's most important landscapes while promoting the wise use of its renewable natural resources. Maintaining this balance has made the Forest Society one of

the most effective land conservation organizations in the country, partnering with public agencies, communities, and private landowners to protect over one million acres in the past century.

Squam Lakes Association

P.O. Box 204
Holderness, NH 03245
(603) 968-7336
Fax: (603) 968-7444
<http://www.squamlakes.org/>

The Squam Lakes Association (SLA) is a non-profit conservation organization, located in Holderness, NH. SLA was founded in 1904 and it protects the Squam Lakes watershed through conservation, education and outreach programs. SLA owns Moon Island, Bowman Island, and Belknap Woods and manages Chamberlain-Reynolds Memorial Forest, all of which are open to the public for low impact recreation and camping. SLA operates youth programs, monitors the water quality of the lakes, and maintains over 50 miles of hiking trails.

Squam Lakes Conservation Society

P.O. Box 696
Holderness, NH 03245-0696
Phone: 603-968-7900
Fax: 603-968-7903
<http://www.squamlakes.com/>

The Squam Lakes Conservation Society is a land preservation and conservation organization dedicated to the protection of the natural environment for the benefit of all present and future residents and visitors to the Squam Lakes Watershed. It achieves the long-term protection of land by seeking, holding and monitoring conservation easements and by accepting land ownership. In addition, the Society communicates its objectives and regularly provides educational programs to the community. Its activities are accomplished in cooperation with state and local authorities, businesses, conservation organizations, residents, landowners and visitors. SLCS holds 19 conservation easements in Holderness, covering 800 acres and over 5 miles of prime Squam shoreline.

Squam Lakes Natural Science Center

PO Box 173
23 Science Center Road
Holderness, NH 03245
Phone: (603) 968-7194
Fax: (603) 968-2229
<http://www.nhnature.org/>

A private non-profit organization located in central New Hampshire. The Squam Lakes Natural Science Center's mission is to advance understanding of ecology by exploring New Hampshire's natural world. Live black bear, mountain lions & other native NH wildlife. Trails to explore, activities for all ages, guided pontoon tours with Science Center Lake Cruises on Squam Lakes, gift shops & more.

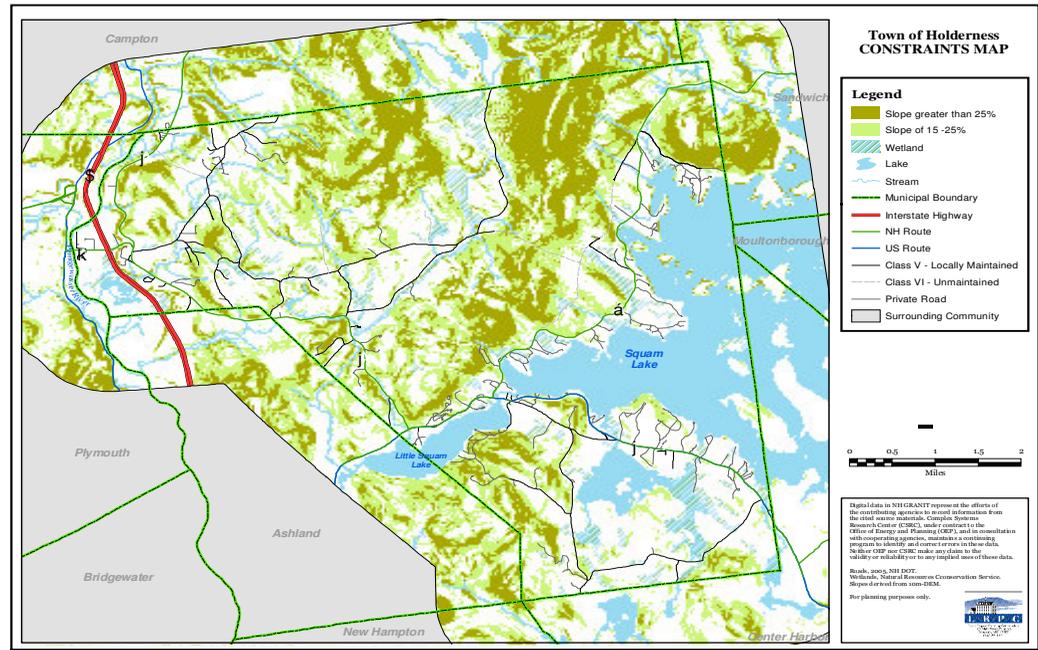
3. Recommendations

The following recommendations were based on discussions with the Planning Board and Conservation Commission.

- Expand the Shoreland Protection Act regulations to the tributaries and waterways within the watershed. Currently Squam Lake is required to comply with the Act but there is a need to extend the protection through the watershed so that water quality as a whole is improved.
- Identify steps towards additional protection of the local aquifers. There are three stratified drift aquifers and the land which they lie under is currently not protected. Options include protecting the overlying land, public education, and land use restrictions.
- Create a co-occurrence map specific to Holderness. This would allow the town to prioritize their own goals and areas of interest and create a visual representation of community. This could also help guide future development and conservation work.
- Create a GIS data layer of tax parcel information (tax map and lot number) which could then be used with the co-occurrence map. This would also help determine where development should occur and what areas should be conserved.
- Identify areas of concern or interest and create goals to reach an implementation stage and address any conflicts which may occur
 - The valley between Mt. Prospect and the Pemigewasset River is currently being developed and is also the location of Holderness' prime agricultural lands
 - The large tracts of currently undeveloped and unprotected land on the Squam Range. There are only a few parcels which contain the range and could easily be subdivided by one owner, having significant effects on the character of Holderness
 - Vernal pools within town are not formally identified and therefore are at risk of being damaged or destroyed
 - Work with surrounding communities and citizen organizations to address common preservation and conservation goals
 - Plymouth regarding aquifer concerns
 - Ashland regarding water quality of Little Squam Lake
 - Center Harbor and Sandwich regarding water quality of Squam Lake

- Address transportation concerns by identifying existing and potential options available to residents
 - Create a path/trail using class 6 roads and any existing trails which would cross town and allow for residents to safely move within town without using their cars
 - Link school to conservation lands through a trail system (Central School – town forest – Pilote Property)
 - Create, update, and distribute a town trail system map which would include routes to hike, walk, bike, ski, and snowmobile.

- Continue to monitor for compliance issues, specifically for permits to cut, erosion control and to ensuring that prime wetlands are being protected.
- It should be recognized the views are an important part of the tax base and should be protected as much as practicable.
- Uses on steep slopes can have detrimental impacts; the planning board needs to develop better erosion control regulations for added protection in sloped areas.



Natural Resource Characteristics

Scenic Resources

"The View Place":

Location: A short stretch of private property along Route 3 where Big Squam is separated by less than ten meters from the highway. The shore is in grass and low shrubs. The roadside is separated from the shore segment by a highway railing.

View: To the north across the lake include the lake, its islands and the Squam and Sandwich Ranges. The view to the east is of Piper Cove and Cromwell Point.

Squam Lakeside Farm Wall

Location: A short stretch along Route 3 across from the Squam Lakeside Farm where the highway is separated from Little Squam by less than ten meters.

View: The middle section of Little Squam. The only impairment of the view is a low stone wall built of riverine cobbles.

Shepard Hill

Location: At the junction of Shepard Hill Road and Coxboro Road.

View: Primarily to the northeast and east of White Oak Pond, Big Squam, Red Hill, and the Sandwich Range.

East Holderness Road

View: Farm properties with views northward of the Squam Range.

South Coxboro Road

Views: Of White Oak Pond and Squam Lake.

West Rattlesnake

Location: Trail to the top. Several miles north of Route 3/25 on Route 113

View: A 270 degree view encompassing the Squam Range from Mount Major to Fayal, Shepherd Hill, Squam Lake and all its islands, Red Hill and the Sandwich Range.

Squam Range Ridge Pole Trail

Location: Squam Range: Trails starting on Route 113 or from the other side of the range or from Sandwich.

Views: Easterly of the Squam Lake watershed, views westerly of the Mad River watershed.

Route 113

Views: Occasional views of Squam Lake and rural countryside with horse pastures intermixed with woods.

Mt. Prospect

Location: Private property, but trail accessible by permission of owner.

Views: Pemigewasset and Baker River watersheds.

Mt. Prospect Road

Location: Town maintained road.

Views: Across fields on west side of road of Pemigewasset and Baker River valleys, Plymouth Mountain, Stinson Peak, and Tenney Mountain.

Interstate-93

Location: In the Holderness intervale region in the vicinity of Exit 25.

Views: The Pemigewasset River flood plain and the north section of the Pemigewasset River valley.

Bridge connecting Holderness and Plymouth

View: Both north and south of the Pemigewasset River.

Natural Resources

Squam Range

Features: Mostly mixed deciduous forest, managed for timber by most land owners.

Access: Property on western slopes primarily owned by private individuals with public access by trails maintained by the Squam Lakes Association.

Armstrong Natural Area on West Rattlesnake Mountain

Features: Forested area with granite outcrops on south and southeastern facing slopes.

Access: Owned by the University of New Hampshire. Public access by trail system. Parking lot is on Route 113.

Crawford Easement

Features: North facing forested slope area with short segment on Big Squam. Easement used to gain LCIP match in 1991 to purchase two other pieces of property in town.

Access: Private

Frank Easement

Features: Small forested island on White Oak Pond.

Access: Private

Town Forest

Features: A 52 acre parcel, on Beede Rd., containing an old gravel pit in eastern section where top soil and gravel was removed. Some re-vegetation of pine, poplar, and birch is occurring. Eastern section consists of mature deciduous forest with small stream along one border.

Access: By trails.

Pilote Forest

Features: 100 + acre parcel on Beede Rd., with small wetland and creek in southeastern corner of property. Remainder of property in conifers and deciduous trees. Upper section with portions recently cut.

Access: By trail. Emergency access by road across Pilote property.

Mt. Prospect

Features: Deciduous forest with some openings.

Access: Private, with permission by owner

Pemigewasset Riverside Park

Features: 2.7 acre river bottom plot with old stream channel. Forest of deciduous trees mostly 35-70 years old. Historically used as a dump by West Holderness residents. Presently used as a study site by Plymouth State University biology students.

Access: Via small parking lot.

Undeveloped shoreline of islands and lake edge

Features: Although most of Squam Lake is fully developed, in many areas the shoreline has been minimally changed by lake shore property owners. This is also true of islands in the lake. Two islands, Moon and Bowman Islands have been purchased by the Squam Lakes Association (SLA).

Access to Moon and Bowman Islands: By boat. Registration through SLA for overnight camping.

Chapter VI: Transportation

One of the several provisions, which a master plan should consider is alternative modes of travel (RSA 674.2 III.(a)). Local alternative modes of travel should serve the local transportation needs, but also fit in a coordinated way with the regional and state plans. An analysis of the alternative modes of travel within a town is therefore essential. The local highway system is a major part of the transportation system within a rural community and will play an important role in the community's developmental goals and the planning necessary to achieve these goals. Although the cost of the highway system is a significant part of the town's budget, the need for an efficient well-maintained road system is critical to safe and good transportation.

1. Road Classifications

In accordance with RSA 229.5 all public roads and highways in New Hampshire are divided into seven classes. These classes are as follows:

Class I Trunk Line Highways consist of all existing or proposed highways on the primary state highway system, excepting all portions of such highways (other than interstate and defense highways), within the compact sections of cities and towns listed in RSA 229:5 V, provided that the portions of the turnpikes and the national system of interstate and defense highways within the compact sections of these cities and towns shall be class I highways. The New Hampshire Department of Transportation (NHDOT) assumes full control and pays all cost of construction, reconstruction and maintenance of its sections; the cities and towns control the portions in compact areas.

Class II State Aid Highways consist of all existing and proposed highways on the secondary state highway system, excepting portions of such highways within the compact sections of cities and towns listed in RSA 229:5 V. All sections improved to the satisfaction of the Commissioner of the Department of Transportation are maintained by the State.

Class III Recreational Roads are highways consisting of all recreation roads leading to, and within, state reservations designated by the Legislature. The NHDOT assumes full control of such roads.

Class III-a Boating Access Highways consist of new boating access highways from any existing highway to any public water in the state. The Executive Director of the Fish and Game Department shall have the same authority for Class III-a highways that is delegated to the Commissioner of the Department of Transportation for limited access highways. A Class III-a highway shall not be maintained during winter months.

80

Class IV Rural Highways consist of all highways (except interstate highways) within the compact sections of cities and towns listed in RSA 229:5 V. Sections of Class I and II highways through these areas that have been reclassified by the Commissioner of the Department of Transportation as Class IV highways are included in this classification.

Class V Unmaintained Highways consist of all other traveled highways, which the town has the duty to maintain regularly and shall be known as town roads.

Class VI highways consist of all other existing public ways, including highways discontinued as open highways and made subject to gates and bars, except as Class III-a, and all highways which have not been maintained and repaired by the town in suitable condition for travel thereon for five successive years or more. Under the provisions of RSA 674:41, building permits must not be issued for new dwellings on Class VI highways unless:

- The selectmen, after review and comment by the Planning Board, have voted to authorize the issuance of building permits; and
- Prior to the issuance of a building permit, the applicant shall produce evidence that notice of the limits of municipal responsibility and liability has been recorded in the County Registry of Deeds; and
- The town neither assumes responsibility for maintenance of the Class VI highway nor liability for any damages resulting from its use.

2. Highway Network

Four state roads play a major role in the Holderness transportation system: US Route 3/25 (Daniel Webster Highway), NH Route 175, NH Route 175A, and NH Route 113. These four state roads carry most of the local traffic to get from one part of town to another. Traffic on these roads fluctuates on a seasonal basis.

The road mileage, (Table VI-1) for the town is based on road inventory work conducted by the Lakes Region Planning Commission in the spring of 2005 and data on state roads from the New Hampshire Department of Transportation.

Table VI-1: Holderness Road Mileage

Class I: State Primary	Miles
Route I-93	1.86
Route US 3/25	5.38
Class II: State Secondary	
Route 113	6.16
Route 175	5.88
Route 175A	0.79
Subtotal - State Roads	20.07
Class V: Town Maintained	31.18
Class VI: Not Maintained	7.77
Subtotal - Town Roads	38.95
Total State and Town Road Miles in Holderness	59.02

Source: NHDOT

It is important for the town to advise the NHDOT of road changes because Highway Block Grant Aid Funds are distributed to each municipality based on its relative population and miles of Class V roads. The NHDOT distributes one-half of the Highway Block Grant Funds to each municipality based on its population in proportion to the total state population. The other half of the Highway Block Grant Funds are distributed by NHDOT based on the municipality's proportion of total Class V road miles to the total for the state. Roads in Holderness can be viewed by classification on the Road Classification Map (Page 11).

The pavement types for Class V roads are based on the data from the road inventory conducted in 2005.

Table VI-2: Pavement Types of Class V Roads

Surface Type	1993		2005	
	Mileage	Percent	Mileage	Percent
Paved Roads	19.29	62	21.04	67
Unpaved Roads	11.42	38	10.14	33
Total	30.71	100	31.18	100

Source: LRPC Road Inventory

The miles of Class V paved roads within the town have increased five percent over the last 11 years. This is due to the town progressively working towards reducing their maintenance expenditures by not having to maintain unpaved roads.

Approximately one-third of the Class V roads in the town are unpaved. On a per mile basis, heavily traveled unpaved roads are generally more costly to maintain than paved roads. They are subject to erosion and often require spraying to control dust. Travel often proves difficult during the mud season and when traffic volumes are high. These factors often require substantial regrading to keep unpaved roads in safe and drivable condition. The degree of maintenance cost depends on the road base, the adequacy of drainage and the amount of traffic. Roads in Holderness can be viewed by surface type on the Road Surfaces Map (Page 12).

3. Traffic Flow

An important element in transportation considerations is traffic flow. A study of traffic flow often provides information to isolate problems of congestion and the probable cause of highway accidents. Traffic flow will be discussed through several approaches: looking at the functional classification of roadways and classification of Holderness roadways, daily traffic patterns, and accidents.

Functional classification refers to the different ways various roadways are used. For example, some roads serve just local traffic while others primarily serve traffic passing through the community. The following classifications have been developed by the NHDOT.

Principal Arterial - Principal Arterial Roads form the basic framework for the state's road network. Their primary function is to serve as the major routes for interstate travel and commerce. They also help to link economic regions and urban centers. Ideally, all principal arterials should have full control of access, that is, no direct access to abutting properties.

Minor arterial - are also major long distance traffic corridors and primarily serve as links between major population centers within or between distinct geographic and economic regions. They may also serve as regional links between two or more principal arterials.

Major Collector - Major Collector Roads differ from arterials by the size of their primary service areas. Major collectors serve traffic traveling within a region. Average trip lengths on major collectors are shorter than for arterials. Major collectors gather trips from local roads and distribute them into the larger highway network. Major collectors also link the major communities within a region and may also serve as local collectors between arterial and village and urban centers not served by an arterial road.

Minor Collector - Minor Collector Roads provide access to smaller communities within a geographic or economic region. They link locally important areas of traffic with surrounding rural areas.

All other roads are classified by the NHDOT as local roads. This category includes all locally maintained Class V roads. The Lakes Region Planning Commission has further divided this "local road" category into two subsets:

Local Collector - Local Collector Roads may serve as a link between two small villages or as a conduit or a connection link for a number of local streets within a community or urban center.

Local Roads - Local roads and streets are primarily used to provide access to adjacent properties. Average trip lengths are generally small and there are numerous turning movements in and out of abutting properties. All roads not listed in the other categories should be considered local roads. The functional road classifications in the town are as shown in the following Table VI-3:

Table VI-3: Functional Road Classifications

Functional Class	Description of Segment	Mileage
Principal Arterial	I-93: Ashland Town Line to Plymouth Town Line	1.86
Major Collector	US 3/25 Center Harbor Town Line to Ashland Town Line	5.38
Minor Collector	NH113: US 3/25 to Sandwich Town Line	6.16
	NH 175: US 3/25 to Ashland Town Line	2.61
	NH 175: Ashland Town Line to Campton Town Line	3.27
Local Collector	Mt. Prospect Road: NH 175 to Campton Town Line	2.96
	NH 175A: NH 175 to Plymouth Town Line	0.79

Source: NHDOT

Generally, arterial roads offer high-speed travel with less ready access from abutting properties, while local streets offer ready access but relatively low speed. Collectors fall in the middle with both speed and access. The functional classification is useful since it can point out potential problem areas due to a conflict in the uses of a road. Similar problems result if there is extensive development on local streets. Such roads have a limited traffic capacity and high flow of traffic could increase the risk of accidents. It is important that zoning and other town regulations recognize the inherent limitations of the various functional road classifications.

Average Daily Traffic (ADT) for Class I and Class II highways in Holderness are shown in Table VI-4.

Table VI-4: Average Daily Traffic Volume Counts of Class I and Class II Roads

Highway	1989 ADT	Current ADT and Year	
I-93 at Plymouth Town Line	10,000	20,000	2002
US 3/25 East of Piper Road	5,000	5,600	2001
NH 175A West of I-93	2,500	9,200	2003
NH 175 North of Mount Prospect Road	1,400	1,900	2003
NH 175 North of North Ashland Road	1,900	4,200	2003
NH 175 over Owl Brook Road	2,500	3,300	2003
NH 113 West of Livermore Cove Road	1,000	1,500	2003

Source: NHDOT

As shown in Table VI-4, the ADT has increased on all Class I and II highways in Holderness. Using the most current traffic volumes available:

- I-93 traffic has increased from 10,000 to 20,000 over the last thirteen (13) years. This is an average increase of approximately 770 ADT per year for an increase of one hundred percent (100%).
- US 3/25 traffic increased approximately 50 ADT per year over a twelve (12) year period. The increase of 600 ADT over the twelve (12) year period represents an increase of twelve percent (12%).
- NH 175A traffic increased on an average of approximately 450 ADT per year over a fourteen (14) year period. Although the average annual increase in ADT is not as significant as on I-93, the traffic increased two hundred sixty-eight percent (268%) in the fourteen (14) years.
- NH 175 traffic increased at all locations, over a fourteen (14) year period, where traffic was counted. The largest increase was in the middle section of NH 175 at North Ashland Road. While each end of NH 175 increased thirty-six percent (36%) and thirty-two percent (32%), the center section of NH 175 increased one hundred twenty-one percent (121%).
- NH 113 traffic increased by fifty percent (50%) over a fourteen (14) year period.

In summary, traffic on Class I and II roads at all locations within Holderness increased from a low of twelve percent (12%) to a high of two hundred sixty-eight percent (268%). It would appear that the substantial increase in traffic on NH 175A is due to it being the most direct link from Holderness to Plymouth and points north on I-93.

Table VI-5 shows the traffic volume on Class V roads in Holderness based on a traffic count performed by the LRPC during the month of November 2004.

Table VI-5: Daily Traffic Volume Count, November 2004

Highway	1989 Daily Traffic	2004 Daily Traffic
Mount Prospect Road at NH 175	1,400	1,686
Seven Pines Road at NH 175	330	547
Hardhack Road at NH 175	550	547
Perch Pond Road at Hardhack Road	300	311
East Holderness Road at US 3/25	280	221
Shepard Hill Road at Coxboro Road	480	574

Source: LRPC

Comparing 2004 daily traffic volumes with 1989 daily traffic volumes:

- Mount Prospect Road daily traffic increased an average of 19 vehicles per year for a total increase of twenty percent (20%) over a 15 year time period.
- Seven Pines Road had an increase in daily traffic of approximately sixty-five percent (65%) over a 15 year time period.
- Hardhack Road daily traffic remained essentially the same since 1989.
- Perch Pond Road daily traffic increased approximately four percent (4%) over the 15 years.
- East Holderness Road daily traffic decreased 59 vehicles for a twenty-one percent (21%) reduction over 15 years.
- Shepard Hill Road daily traffic increased an average of 6 vehicles per year for a twenty percent (20%) increase in the last 15 years.

In summary, over the past 15 years daily traffic has increased on all Class V highways in Holderness, with the exception of East Holderness Road. The largest increases occurred on Mount Prospect, Seven Pines and Shepard Hill Roads while others remained virtually the same with the exception of East Holderness Road, which experienced a decrease in daily traffic.

4. Road Considerations

Since the development of the town's Transportation Improvement Program (TIP) in 1988, the town has been in a road-building phase. That phase is essentially complete and the town is beginning the resurfacing and maintenance phase of the town's road program.

Road maintenance is a major concern for the town because of safety and budget considerations. It is essential that continued emphasis be made to maintain the roads in adequate condition. If roads are allowed to deteriorate, at some point in time, the cost of repair will greatly increase.

The University of New Hampshire developed a Road Surface Management System (RSMS) to assist towns in managing their roadway networks. Although the town of Holderness does not utilize RSMS, the town road agent has received training in RSMS and utilizes the principles of RSMS to manage the roads in Holderness.

5. Highway Accidents

During the period from January 2001 through November 2004, there were 224 accidents on the roadways within Holderness. For the purpose of comparing this total number of accidents to previous years, the average number of accidents over the time frame of 2001 through 2004 resulted in an average of 56 accidents per year. During the time frame of 1987 through 1992 there were a total 389 accidents, resulting in an average of 78 accidents per year. The resulting average number of accidents over the past 14 years has been a 28 percent reduction in the number of accidents on the roadways within Holderness.

All of the accidents, except for two, were of a minor nature. Two of the accidents resulted in three fatalities. A majority of the accidents (63%) were a result of driver error while the remainder of the accidents (37%) were considered road related. Road related accidents included accidents caused by weather, obstructions, and construction.

Table VI-6 shows the number of accidents on Class I and Class II roads.

Table VI-6: Accidents on Class I and II Roads, 2001–2004

Year	I-93		US 3/25		NH 175A		NH 175		NH 113	
	Total	Road Related								
2001	2	0	18	5	14	3	6	2	3	0
2002	4	3	21	8	8	0	16	11	11	4
2003	3	3	13	4	12	5	17	8	3	0
2004	1	1	9	0	3	1	12	6	12	5
Total	10	7	61	17	37	9	51	27	29	9

Source: Holderness Police

NH Route 175A is a very congested area because of the many businesses, Plymouth State University facilities and parking lots on approximately one mile of roadway. US Route 3/25 presents similar conditions but the congested areas occur at various locations along the route. These points are at motels, post office and bridge areas of the town and the intersections of NH Routes 113 and 175.

The two accidents resulting in fatalities were on Routes 175A and 3/25. The location of the NH Route 175A accident was at the I-93 underpass. The accident was determined to be a negligent homicide caused by a Driving While Intoxicated (DWI) driver hitting two students walking along the roadway. As a result of the accident, two underpasses have been constructed to keep pedestrians off the roadways. In addition, sidewalks will be constructed along NH Route 175A when the NH Route 175A bridge over the Pemigewasset River is reconstructed.

A driver falling asleep resulting in the passenger of that vehicle being killed caused the US Route 3/25 fatality.

There were a total of 36 accidents on local roads (Class V) from 2001 through November 2004 resulting in 16 percent of the total accidents within Holderness. A majority of the accidents (64%) were driver related and the remainder (36%) was weather related.

Table VI - 7: Accidents on Local Roads, 2001 – 2004

Road	Number of Accidents	
	Total	Road Related
Avery Street	1	0
Beede Road	2	0
Chapel Lane	1	0
College Road	1	1
Coxboro Road	5	2
Cromwell Pointe Road	2	1
E. Holderness Road	2	2
Hardhack Road	1	1
Kesumpe Point Road	2	1
Lane Road	1	0
Livermore Road	1	0
Manor Drive	1	0
Mount Prospect Road	4	1
North Ashland Road	1	0
North River Street	1	0
Perch Pond Road	1	0
Prospect Woods Road	1	1
School Road	1	0
Seven Pines Road	1	0
Shepard Hill Road	4	1
Smith Road	2	2
Total	36	13

Source: Holderness Police

6. Public and Semi-Public Transportation

The town has no public or semi-public transportation. Consequently, this causes a hardship for low-income households, some senior citizens and residents without personal transportation.

Bus service to major areas of the state and Massachusetts is provided by the Concord Trailways bus line. Plymouth is a stop on the Tilton to Littleton line. This service is on a limited schedule and private transportation is needed to get to Plymouth.

There is no taxi service in Holderness. The nearest taxi service is in Plymouth. Volunteer service groups, such as Meals on Wheels, FISH, and Community Action Program, provide local public transit. These groups provide limited transportation for medical appointments, shopping, personal appointments, and emergencies.

7. Alternative Forms of Transportation

Until recently, the town has given limited consideration to bicycle and pedestrian traffic safety. There are no wide, paved shoulders for the many cyclists who try to share the road with motor vehicles. There were only two short sidewalks in the town until those sidewalks were recently extended northerly along US Route 3/25 by approximately 1.2 miles on the north side of US 3/25 to the junction of NH 175.

8. Additional Considerations

Transportation is fundamentally linked to land use; development is dependent on good road access, and as development occurs there are impacts on the transportation system. Tools that address land development impacts on the transportation system include, access management, corridor planning, transit-oriented development, context sensitive solutions, and traffic counting. Each of these transportation planning tools is designed to assist communities as they consider the impacts of their transportation decisions and further maintain the efficient and safe operation of the transportation infrastructure.

In Holderness, nearly one third of the public, maintained transportation system consists of state highways. The NH Department of Transportation (NH DOT) issues driveway permits for all proposals for access on state roads. To coordinate state and community transportation planning, the NH DOT has instituted a process to involve local officials in this permitting process.

Through a memorandum of understanding the NH DOT and a community coordinate the review and issuance of driveway permits to access state roads. Such an agreement could be beneficial to Holderness when considering land use impacts on the transportation system.

9. Summary and Recommendations

Currently, Holderness does not face insurmountable traffic related problems for conventional motor vehicles. Even though there is an arterial highway, a major collector road and two minor collector roads in the town, traffic normally flows smoothly during most of the year. During the summer tourist season, traffic on US Route 3/25 does increase and periodically causes some congestion at the NH Route 113 and 175 intersections.

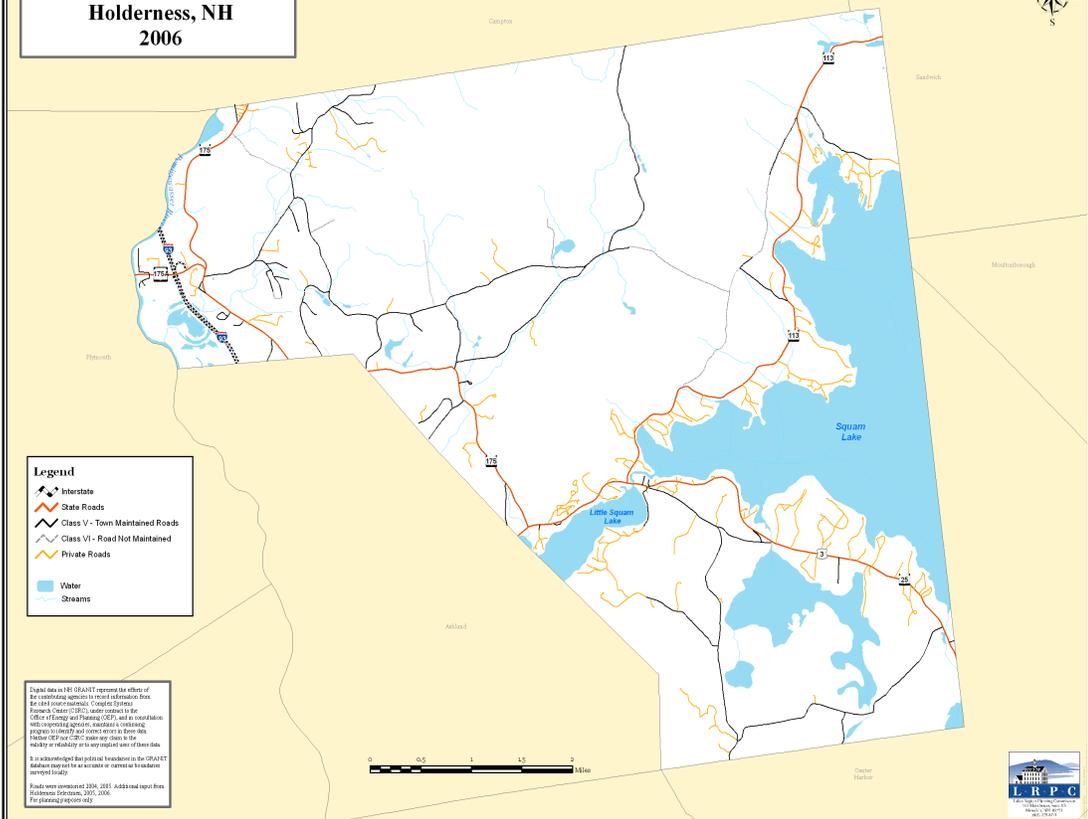
The concerns for bicycle and pedestrian traffic are growing with some interest in providing better facilities for alternative transportation.

Since the last update of the Master Plan in 1994, the town has completed the naming of all roads, including private roads, in the town. Although work is underway on some of the previous recommendations from 1994, the following are concerns, which need to be addressed to improve the transportation system for the town of Holderness:

- Request the NHDOT and LRPC to improve the conditions of NH Routes 113 and 175. Both of these routes are minor collectors and carry a majority of the town's traffic. Some portions of these roads should be reconstructed rather than resurfaced.
- Require improvements to road shoulders when roads are reconstructed or resurfaced to provide appropriate and safe pedestrian and bicycling surfaces.
- Seek government and private funds for the design and development of an alternative system to link natural resources and attractions with services and facilities.
- The Planning Board should regularly update the Transportation Improvements Program (TIP). Updating of the TIP should be combined with the annual review of the Capital Improvements Program (CIP).
- Fund and implement the TIP and CIP.
- Continue to review the town policy concerning private roads. The town's first consideration is to Class V roads. This responsibility does not prevent alternate arrangements for private roads from being developed that are consistent with the requirements of RSA 231:59.
- Continue to enforce construction standards for private roads. In addition, develop acceptance guidelines for accepting roads from contractors.

- Require traffic impact statements for all major residential and non-residential developments. These statements should be prepared according to the criteria developed by the Planning Board. An independent consultant, at the developer's expense, should review all completed statements.
- Continue to review town road mileage annually since the town road mileage affects state funding under the highway block grant program.
- Conduct a comprehensive review of zoning regulations that apply to commercial development along state roads. The scattered commercial development along state roads causes traffic problems. The guidelines used to grant special exceptions should be very detailed and stringent.
- Continue to promote subdivision plans that minimize the number of lot access points to existing collector or arterial roads. Such plans would reduce the number of intersection conflicts on the more heavily traveled roads. A similar approach should be used with commercial developments.
- Establish regular traffic studies for major and minor collectors. Such studies are necessary if roads are to be properly classified and maintained to the required standards. NHDOT and the LRPC should be informed on a current basis of serious road deficiencies such as poor pavement conditions, congestion areas, dangerous route junctions, and obstructive parking areas.

**ROAD CLASSIFICATION:
Holderness, NH
2006**



Legend

- Interstate
- State Roads
- Class V - Town Maintained Roads
- Class VI - Road Not Maintained
- Private Roads
- Water
- Streams

Digital data in this GIS/AMT represents the effect of the combining agencies to record information from the data from various sources. Coordination Systems: Vermont's Center (VCC), under contract to the Office of Energy and Planning (OEP), and in coordination with participating agencies. Information: Vermont's Center (VCC) and Vermont State GIS. Private Roads and other roads in town data. Private OEP for OEP. Data not shown in the GIS/AMT or otherwise in any digital form of data. It is acknowledged that data in the GIS/AMT database may not be as accurate or current as the database currently is. Roads were inventoried 2006, 2005. Addressed input from Holderness, Vermont, 2002, 2006. For planning purposes only.



**ROAD SURFACES:
Holderness, NH
2006**



Legend

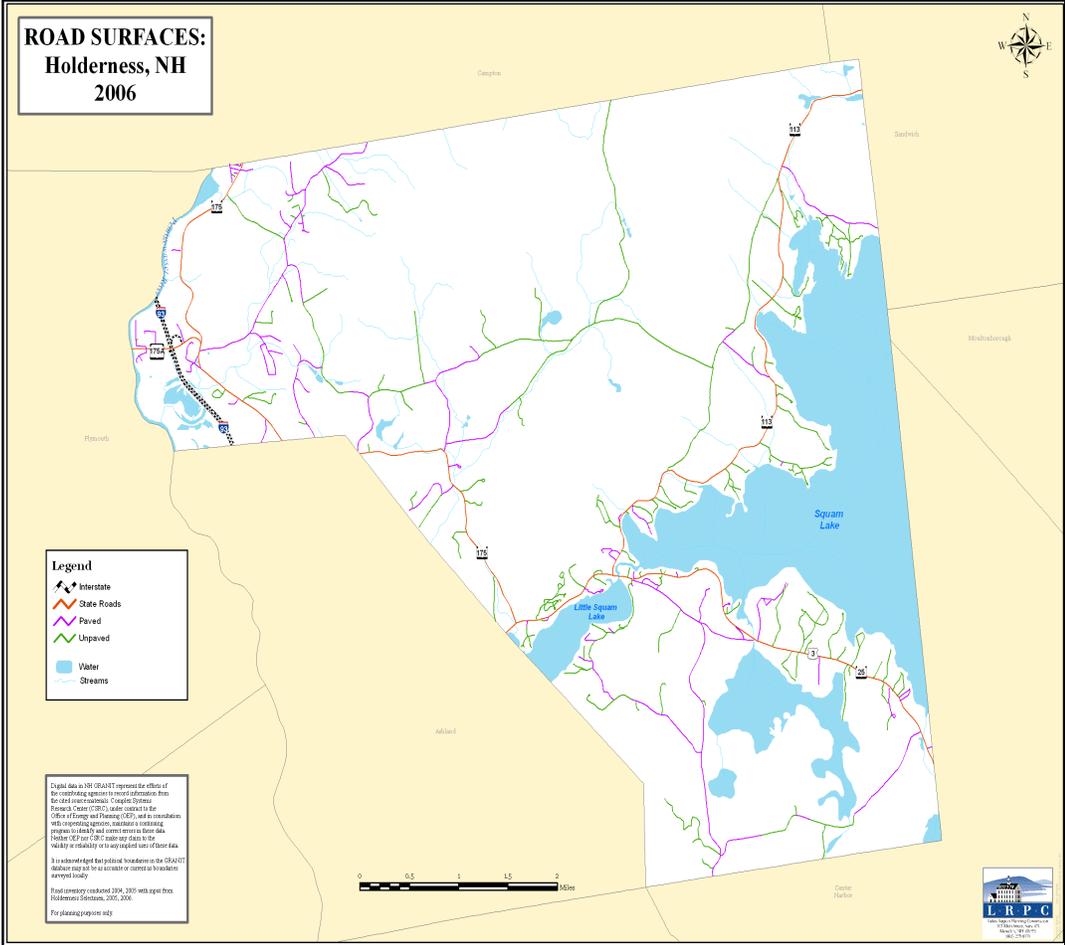
- Interstate
- State Roads
- Paved
- Unpaved
- Water
- Streams

Display data as 191 GRANIT represent the effects of the competing agencies to record information from the data collection agencies. Complete Streets Research Center (CSRC) under contract to the Office of Energy and Planning (OEP) and in consultation with competing agencies, conducted a continuing program to identify and correct errors in the data. Holderness OEP and CSRC make any data to the public or internally to the appropriate level of data.

It is understood that political boundaries in the GRANIT database may not be as accurate or current as the data surveyed locally.

Road centers were collected 2004, 2005 with spot data Holderness (October, 2005, 2006).

For planning purposes only.



Chapter VII: Land Use

The land use section of the master plan forms the basis for other sections of the master plan. This section provides a translation of the vision statements in physical terms. Topics covered in this section include the examination of existing land use and land cover by category, subdivision activity between 1996 to 2005, current use lands, and constraints to future development such as wetlands, steep slopes, and protected conservation lands. This review provides the background information for a discussion on future land use.

1. Existing Land Use and Land Cover

Holderness is a town of primarily rural, residential land use characteristics with scattered areas of commercial and institutional uses. Residential use accounts for the greatest amount of developed land (837.23 acres) in the community, of which approximately 33% of the total residential units are used seasonally and located by the larger water bodies. Commercial uses can be found along much of the length of US Route 3 / NH Route 25, and especially in the village center at the intersection of US Route 3 / NH Route 25 and NH Route 113. Other smaller commercial areas are located on NH Route 175A near Plymouth and elsewhere throughout town on a parcel by parcel basis. The town's major institutional uses are found near the village center (Post Office, Town Hall, Fire Station, and Library) as well the Holderness School and Plymouth State University athletic facilities in the northwest of Holderness.

A land use and land cover map was prepared by the Lakes Region Planning Commission (LRPC) by analyzing 2003 aerial photography. The draft map was reviewed and updated by the Holderness Planning Board, leading to the revised 2005 Current Land Use Map displayed on page 4. Squam watershed maps may also be used to show many land use details.

Land uses, or the types of human activity that occur on the land, have been defined as the principal use of a parcel or set of contiguous parcels. The area of a parcel occupied by cleared land and footprint of buildings was estimated for each land use category. Remaining portions of each parcel were classified by land cover such as, agricultural, transitional to forest, or forest. Table VII-1 details the land use and land cover in Holderness in 2005. The

Table VII-1 2005 Land Use and Land Cover

Land Use and Land Cover	Acres
Residential	842.3
Commercial, Services, Institutional, and Government	195.6
Industrial	16.3
Transportation, Communications, & Utilities	84.5
Outdoor, Other Urban, and Built Up Land	297.3
Agricultural Land	665.9
Brush and Transitional to Forest	503.0
Forest	16,271.0
Water	3,456.0
Wetlands	568.0
Total	22,900.0

table is followed by a description of land uses by category.

Source: Lakes Region Planning Commission

Residential Uses (842.32 acres)

Scattered residential development can be found throughout much of the town, but is more concentrated in three general sub-areas. Holderness is best known for the first area, which consists of both seasonal and year-round development surrounding Squam and Little Squam Lakes. The majority of these housing units are seasonal cottages, but there are a large number of year-round houses and farms in the same vicinity, especially along the northern section of NH 113 near the Sandwich town line.

A second sub-area, consisting primarily of year-round residential development, is found along Coxboro Road and along East Holderness Road. The third sub-area of residential development encompasses the western portion of Holderness. This area includes land on either side of NH 175 from US Route 3 / NH Route 25 to the Plymouth town line, Mount Prospect Road, Seven Pines Road, Hardhack Road, and the subdivisions and side roads of this area. With easy access to Interstate 93 and Plymouth just to the west, it is clear why residential development has been attracted to this area.

Commercial, Services, and Institutional/Government (195.61 acres)

Holderness is primarily a residential community, and as such does not have a large amount of commercial activity. The majority of commercial uses are found in the village center and along US Route 3 / NH Route 25 with a predominately summer seasonal theme: campgrounds, lodging establishments, restaurants, marinas and assorted small retail stores. There is also a small commercial area along NH 175A to the west of Interstate 93. Other commercial uses include the numerous home occupations scattered throughout town and several grandfathered commercial establishments such as auto repair and construction activities.

The commercial district in Holderness consists of the areas along the northern portion of NH Route 175 and along US Route 3 / NH Route 25 near the intersection of NH Route 113. A variety of uses are permitted in the commercial district which include residential, commercial, and institutional uses. Existing institutional and governmental uses found in Holderness include the Holderness School, the Plymouth State University athletic facilities, the Squam Lakes Natural Science Center, the Holderness Central School, the Fire Station, the Town Hall, Solid Waste Transfer Station, the Town Beach, several churches, and the Post Office.

Industrial (16.29 acres)

A limited amount of industry exists in Holderness. Industrial uses include the Granite State Plasma Cutting, and some properties between NH 175 and the Pemigewasset River. Six industrial parcels were identified totaling 16.29 acres.

Transportation, Communications, and Utilities (84.48 acres)

This category includes all roads in the community as well as land used for communications and utilities. For example, the land area in west Holderness that contains the power transmission lines was included in this land use category.

Outdoor, Other Urban, and Build-up Land (297.34 acres)

This category of land use includes parks with improvements and structures such as swing sets, bathhouses, pavilions, etc. The 297 acres in Holderness include Holderness School and Plymouth State University playing fields, Highland Links Golf Club, Pemigewasset Valley Fish and Game Club, NH Fish and Game Owl Brook Training Center, Squam Lakes Natural Science Center, Squam Lakes Association and its islands, campgrounds and cemeteries.

Agricultural Lands (665.91 acres)

Agricultural lands include cleared areas that are not associated with other uses. This classification includes pastures, open fields, row crops, etc. Agricultural lands represent approximately 3 percent of the total land area in Holderness.

Undeveloped Lands

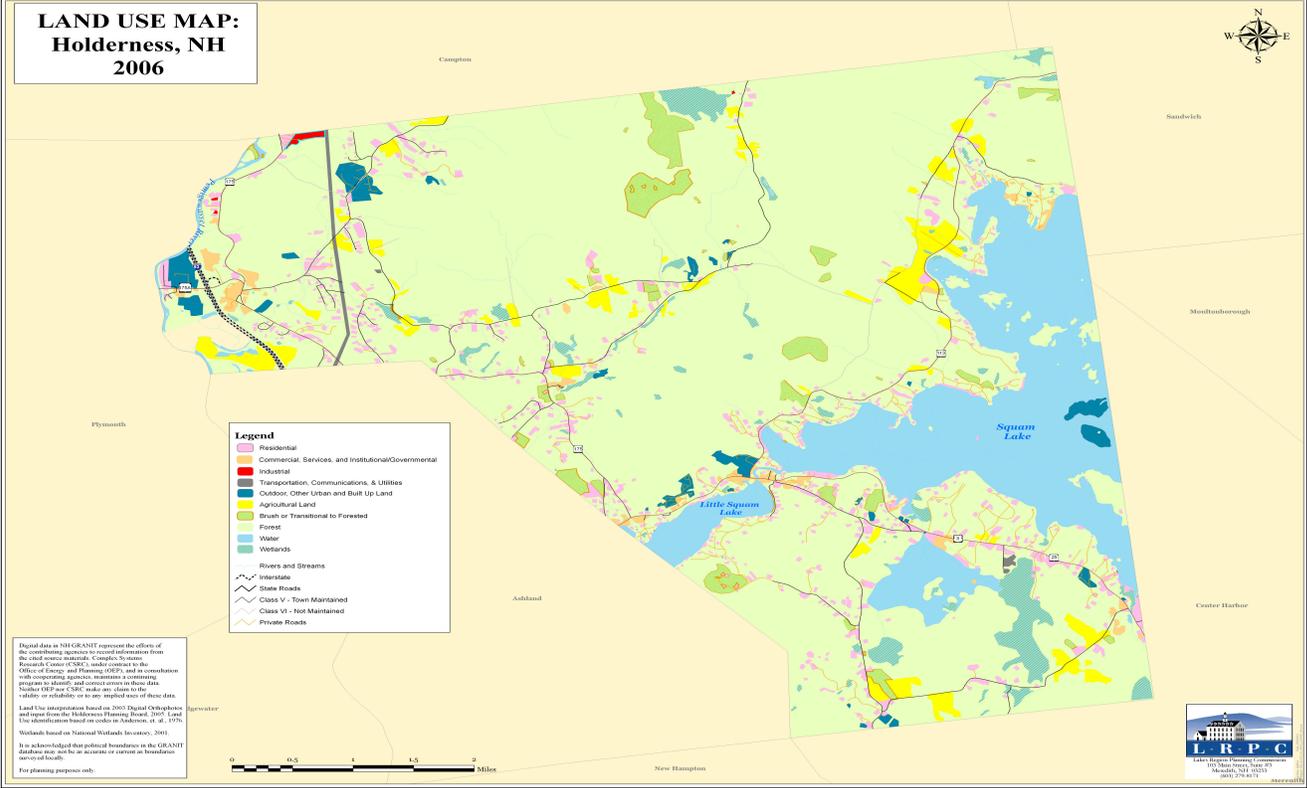
The majority of land in Holderness can be classified as undeveloped. Combined, forests, water, and wetlands account for 20,798 acres. Those areas that are most likely for development included forest, transitional, and agricultural lands which account for approximately 17,439 acres. A portion of this land is associated with other uses such as residential or commercial, and more limited development potential. For example, a residence on 20 acres of land with cleared area for buildings, driveways, walkways, and lawn, was calculated as 19 acres of forested land and one acre of residential land use. Using existing zoning regulations and development constraints, an analysis should be done to provide a greater understanding of the potential evolution of this land.

Water (3,456.02 Acres)

Water bodies such as Squam Lake, Little Squam Lake, and White Oak Pond cover just less than 3,500 acres in Holderness, or approximately 15% of the Town's total area. The location of water resources in Holderness have been the greatest influence on the location of land uses, ranging from the houses and cottages which occupy much of the shoreline areas to the village area at the point where Squam and Little Squam meet.

As noted throughout the Master Plan, the town's lakes and ponds are a critical resource, important with regard to quality of life and conservation issues as well as the local economy. Consequently, the protection of this resource is of the utmost importance. In addition to lakes,

**LAND USE MAP:
Holderness, NH
2006**



Legend

- Residential
- Commercial, Services, and Institutional/Governmental
- Industrial
- Transportation, Communications, & Utilities
- Outdoor, Other Urban and Built Up Land
- Agricultural Land
- Brush or Transitional to Forested
- Forest
- Water
- Wetlands
- Rivers and Streams
- Interstate
- State Roads
- Class V - Town Maintained
- Class VI - Not Maintained
- Private Roads

Digital data as NH GRANIT represent the efforts of the contributing agencies to record information from the land use inventory. Complete details of the data sources, methods, and procedures are in the Report of Contents of the GRANIT, which is available to the Office of Energy and Planning (OEP) and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in the data. Notices filed in OEP indicate any claims to the validity or reliability of any information in these data.

Land Use information based on 2005 Digital Orthophotos and maps from the Holderness Planning Board, 2005. Land Use information based on codes in Anderson, et al., 1976. Wetlands based on National Wetlands Inventory, 2001.

It is acknowledged that political boundaries in the GRANIT database may not be as accurate or current as boundaries shown on local maps.

For planning purposes only.



rivers, and streams, an additional 567.98 acres are identified as wetlands. Wetlands are associated with filtration and recharge of groundwater and are valued as well for the flora and fauna that require the habitats that wetlands provide. Water resources and wetlands are discussed in greater detail in the Natural Resources Chapter of the Master Plan.

2. Recent Subdivision Activity

Subdivision activity since 1996 was reviewed using previous subdivision activity data developed by the Lakes Region Planning Commission and supplemented by Holderness Planning Board minutes from 2002 to 2005. The compiled subdivision data is presented in Table VII-2 in an effort to display recent development trends.

Table VII - 2 Subdivisions Greater than Two Lots (1996-2005)

Year	Acres	Location	Tax Map and Lot Number	Year	Acres	Location	Tax Map and Lot Number
1996	8.4	MT PROSPECT RD	224-85	2000	5.1	COXBORO RD	241-87
1996	1.5	MT PROSPECT RD	224-84	2000	2.2	LANE RD	247-65
1998	56.5	GREAT ISLAND	243-1	2000	5.7	LANE RD	246-27
1998	1.8	GREAT ISLAND	243-2	2000	2.8	COXBORO RD	255-16
1998	19.8	COLLEGE RD NORTH	241-75	2000	5.9	HAWKINS POND RD	255-14
1999	33.0	SMITH RD	228-24	2001	1.6	ROUTE 175	228-59.1
1999	8.6	SMITH RD	228-23	2001	1.0	ROUTE 175	228-60
1999	22.8	ROUTE 175	227-32	2001	45.7	ROUTE 3	239-49
1999	2.1	WESTRIDGE DR	227-31	2001	0.0	ROUTE 3	239-50
1999	5.2	ROUTE 3	241-69	2001	5.2	ROUTE 3	244-15.2
1999	2.6	ROUTE 3	241-68	2001	5.5	ROUTE 3	244-15.1
2000	56.0	BEEDE RD	222-18	2002	6.4	ROUTE 113	235-21
2000	8.5	BEEDE RD	222-17	2003	22.8	ROUTE 175	227-32
2000	23.9	PERCH POND RD	222-2	2003	33.0	SMITH ROAD	228-4
2000	22.5	PERCH POND RD	222-1	2004	13.2	ROUTE 175	228-1
2000	26.1	ROUTE 175	237-12	2004	12.5	SEVEN PINES RD	228-47
2000	5.3	ROUTE 175	237-11	2004	4.9	ROUTE 3	245-5
2000	2.3	OWL BROOK RD	238-3	2004	24.0	PERCH POND RD	229-2
2000	14.8	OWL BROOK RD	238-4	2004	14.9	ROUTE 175	212-5
2000	15.0	HOWE RD	239-30	2004	5.0	ROUTE 175	228-8
2000	27.6	HOWE RD	239-28	2004	17.0	OWL BROOK RD	238-6
2000	10.0	HOWE RD	239-29	2005	25.0		25-16
2000	3.0	COXBORO RD	241-88	2005	3.6	ROUTE 3	244-14
					640.00	Total Acres Subdivided 1996-2005	

Source: Holderness Planning Board Record, LRPC Analysis

As can be seen in the table, recent subdivision activity has taken place throughout the town of Holderness.

3. Current Use/Conservation Parcels

Due to the natural beauty and constraints to development from wetlands and steep slopes prevalent in Holderness, the town has a large number of parcels classified as wholly or partially in Current Use. Much of the area bordered by NH Route 113 on the east, the Campton town line to the north, US Route 3/ NH Route 25 to the south, and Smith and Mt. Prospect Roads to the west is in current use. While much of this land is constrained due to the steep slopes of Mt. Prospect and the Squam Range, there are also many parcels restricted to development due to conservation easements, etc. Other lands are in Current Use because owners wish to maintain the undeveloped character of the Town. Current Use taxation allows them to do so through a reduction in property taxes. A total of 133 parcels made up 8,350 acres in Current Use in 1993 (1993 Town Office Records). In 2005 a total of 225 parcels were in Current Use representing more than 11,200 acres.

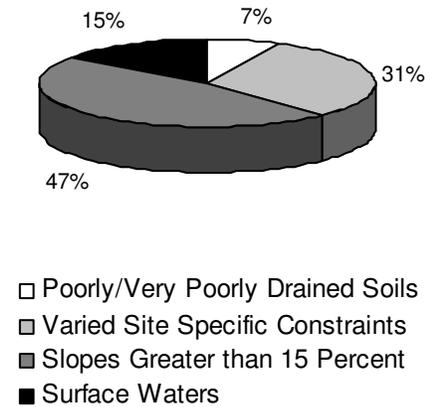
4. Development Constraints

There are a variety of development constraints found in Holderness, including steep slopes, wetland soils, floodplain soils along the Pemigewasset, and surface drainage areas. Table VII-3 provides a town wide overview of these constraints in total acres. While this generally describes the quantity of constraints and land capability, it is not truly representative of development limitations on a parcel by parcel basis.

Table VII - 3 Soils Constrained for Development by Type

Slopes Greater than 15 Percent		Poorly or Very Poorly Drained Soils	
Soil Type	Acres	Soil Type	Acres
22E	46.4	15	37.25
36E	682.3	105	118.56
56D	73.4	114	3.57
57D	1,535.0	295	219.41
57E	408.4	347A	110.31
61D	2,421.7	347B	231.32
61E	1,910.0	395	91.37
73D	31.6	406	36.13
76D	9.4	614	184.29
77D	119.9	647A	132.96
77E	4.8	647B	186.89
90D	64.2	731	189.49
173D	17.8	Total Acres	1541.55
173E	5.5		
254D	19.8		
255D	1,774.9		
255E	270.8		
355D	44.1		
355E	15.4		
709D	149.8		
719D	122.7		
719E	230.4		
720E	781.9		
726E	4.7		
Total Acres	10,744.9		

Holderness Land Capability



Source: GRA NIT, LRPC

Analysis

For this analysis, steep slopes and hydric soils (wetland soils - poorly and very poorly drained) have been mapped through the use of the LRPC's geographic information system (GIS). A review of steep slopes reveals that approximately 10,744 acres of land in Holderness is in excess of 15% slope. This accounts for just over 47 percent of total area covered by the town. Another 1,541 acres is classified as either Hydric A or B, accounting for 7 percent of the area covered by the town. Subtracting out all constraints, surface water, hydric soils, and slopes greater than 15 percent, the net developable land is about 7,200 acres or 31 percent of the total surface area in Holderness.

Steep Slopes

The slope of land is the number of feet, rise or fall, per 100 feet of horizontal distance. Much of central Holderness is comprised of areas of steep slope. The Squam Range separates the northern area nearest Plymouth from the southern area of town containing Squam and Little Squam Lakes, and White Oak Pond. The only means of traveling from one side of town to the other is along NH Route 175, except if hiking along Old Mountain Road. Other areas with steep slopes can be found in the northwest section of town near the Pemigewasset, and an area directly to the south of Little Squam Lake, as well as other smaller areas throughout the town.

Areas of steep slope, when mapped at a town-wide scale, often include areas which would serve as adequate home sites. Mapping at this scale simply allows for an overall view of slopes to aid in town planning. Steep slopes pose numerous problems for transportation and development, including soil erosion, storm water runoff, and sewage disposal.

It is easy to see why and how the highway network and land use patterns developed when examining the steep slopes in the Holderness Constraints Map (Natural Resources Chapter, page 13). Along with Holderness' lakes and ponds, the many acres of steep slopes were, and continue to be, a primary cause of the town's development patterns. The only land capable of supporting the development of a road from Sandwich to Holderness (now NH Route 113) was in the relatively flat area nearest Squam Lake. Numerous farms and large homes are located within this relatively flat area at the foot of Mt. Webster and Mt. Livermore. NH Route 175 north, alongside the Pemigewasset River, is also located in the very narrow, relatively flat area nearest the river course.

Perch Pond Road is another example of a road development pattern constrained by steep slopes, and is located in the flat area directly between Mt. Webster and Mt. Prospect. Although the area north of Seven Pines Road has not experienced much residential development, it is a natural transportation corridor.

Wetland Soils

As noted above, over 1,500 acres of wetland soils (either poorly or very poorly drained) are found in Holderness. Although found throughout town, large wetland areas are situated close to White Oak Pond, along the Perch Pond Road corridor, and along NH Route 113 near Mooney Point. Poorly drained soils are soils in which water drains so slowly that the water table remains at or near the ground surface for a large part of the year (6 to 9 months). Very Poorly drained soil drains over a longer period (9-10 months).

Summary

In summary, much of Holderness' land area is constrained for future development. As seen in Table VII-3, by accounting for steep slopes and wetland soils, only 7,192 acres can be classified as "buildable." In addition, other constraints exist such as floodplain and surface drainage areas. As the amount of buildable land decreases in the future, critical areas are likely to experience greater development pressures. With proper ordinances, the town can continue to regulate these pressures. Increased development leads to increased traffic. Much of the recent development has occurred in proximity to the major transportation routes through Holderness. The Vision Chapter of the Master Plan indicates the future need to address traffic and pedestrian safety.

5. Future Land Use

The future land use section serves as a basis for future changes in the zoning ordinance. It is a prescription for future growth, as well as a plan for the conservation of important natural resources. The first step when undertaking a future land use plan is to quantify existing conditions. This has been done through development of a land use inventory, the review of recent residential subdivisions and current use/conservation lands, and the description of lands with development constraints. The future land use section uses this information to help frame future growth patterns.

After review of existing conditions in Holderness, the Planning Board confirmed that the existing Zoning Map is consistent with desired future land use patterns. The impacts must be reviewed and considered for all uses before expansion (existing uses) or permitting for new uses. The zones identified in the community's ordinance are described as follows:

General Residential: The purpose of this district is to provide for medium density development, which has good access to existing town and state roads, police, school busing and fire protection, and in keeping with the scenic, recreational and environmental values inherent in this district.

Rural Residential: The primary purpose of this district is to provide for a mixture of agricultural and low-density rural living, which will protect the environmentally sensitive areas of this district, such as wetlands, poor soil conditions, and steep slopes where limitations to septic systems exist. A detailed description of these areas may be found in the most recent Holderness Master Plan.

Commercial: The purpose of this district is to reinforce and strengthen the Commercial area where mixed commercial development has already taken place, to provide an area for commercial establishments, tourist facilities and services, residences and public buildings or structures.

River Corridor: The purpose of this district is to provide protection for the environmentally sensitive corridor along the Pemigewasset River and also protection for lives and property from flood waters and debris. The restrictions contained herein take precedence over permitted uses in the portion of the districts over which it lies.

Flood Hazard District: This District is intended to assure that development within the designated flood hazard area shall occur in such a manner as to minimize the danger to life and property from flooding and to minimize the potential for future flooding. It is also to prevent damage to associated, contiguous or intersecting waterways and wetlands.

Shoreland Protection: Areas within 250 feet of Squam Lake, Little Squam Lake, White Oak Pond, and the Pemigewasset River, are intended as a shoreland protection zone.

Drinking Water Protection: The Waukegan watershed and Plymouth wellhead protection zone are special water protection areas that residents should be aware of.

In addition to exploring current land uses a build out analysis may be appropriate to help determine suitable future land uses. The purpose of a build out analysis is to explore worst case full development scenarios through application of existing zoning guidelines.

Additionally, the Planning Board has interest in the promotion of Conservation Subdivisions that aid in the preservation of community resources. For this to be effective, the resource inventories in this and the Natural Resources Chapters must be supplemented by site specific detail. Special resources protection through the conservation subdivision design process requires applicants to prepare detailed site inventory maps that pinpoint exact locations of environmental, cultural, historic, and scenic features on their properties. The benefit of conservation subdivisions beyond the preservation of special resources is that they are less land intensive. This is an important future development consideration for Holderness given the widespread development constraints and limited developable land.

6. Recommendations

With the completion of the Master Plan, the Planning Board should establish a committee for on-going land use regulation updates. Although the Planning Board reviews the Zoning Ordinance annually, it is recommended that the Master Plan effort serve as the impetus for a complete and comprehensive review of all ordinances and regulations, with such an effort occurring in the future at least every three years. Representatives from the Board of Selectmen, Planning Board, Zoning Board of Adjustment, and interested members of the public should be appointed to this committee in order to ensure representation by a broad cross-section of residents. Topics for review and discussion by this group, consistent with the Vision Chapter's stated desire to "permit some development which respects our natural and social environments" include:

- Building on the natural resource co-occurrence work conducted in the Squam Lake watershed, map Holderness resource values, resulting in a community specific identification of areas sensitive to future development;

- Promote special resources protection as development occurs by adopting conservation subdivision regulations;
- Promote aesthetic continuity in the village through the implementation of architectural standards;
- Examine Smart Growth principals endorsed by the Office of Energy and Planning as they relate to commercial development along state highways in an effort to avoid future strip development. This could take the form of a Smart Growth Audit conducted by the Lakes Region Planning Commission;
- Consider steep slope regulations using *Regulating Development on Steep Slopes, Hillsides, and Ridgelines* (LRPC 2005) as a resource and;
- Conduct a town wide build out analysis for Holderness.
- Digitize prime wetland maps to add as an overlay to existing town maps. Properties with conservation or environmental easements should also be included, either in this overlay or in their own overlay.